



BYRAM HILLS SCHOOL DISTRICT SPECTRUM

A COMMUNITY OF LEARNERS COMMITTED TO EXCELLENCE



K-12 ROBOTICS AND CODING

In Byram Hills, the robotics and coding program has become an indispensable part of the curriculum at every grade level. The goal for grades K-8 is to develop student interest by exposing them to robotics, coding, 3D modeling, and electronics, while the objective in the high school is to provide higher-level elective options that allow students to go deeper into the content. No matter what college major or career option a student decides to pursue, robotics and coding may play a role.

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**“BYRAM HILLS IS
PREPARING OUR
STUDENTS FOR
THE FUTURE.”**

**- DR. ANDREW TAYLOR
DIRECTOR OF TECHNOLOGY**

ROBOTICS AND CODING

CONTINUED FROM PAGE 1

COMAN HILL

At Coman Hill, Mrs. Rekha Singh, Building Technology Coordinator, said “Coding and robotics are examples of critical thinking which helps students develop resilience, problem-solving abilities, and persistence.”

Coding and robotics are introduced in kindergarten and there are several advantages to engaging students at the elementary school level. Learning to program empowers children. It puts the students in control and through experimentation builds mastery in sequencing skills, counting, and logical thinking.

“Students love making things work,” said Mrs. Singh. “In first grade, students feel challenged and excited about programming the BeeBot robots to move on a board that simulates the town of Armonk. In second grade, students work with a partner to solve a problem that an Animal Adventure Island is facing with pollution, global warming, and too much trash. The students use ‘Dash and Dot’ robots and write codes to help rescue the animals in their habitats.”

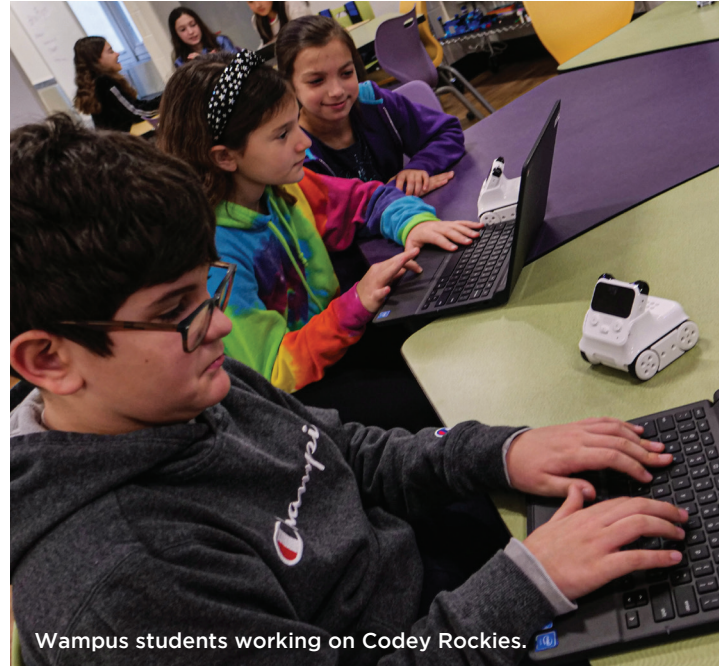
These are real-world, authentic learning experiences that introduce students to digital literacy. The lessons are scaffolded and each year builds upon the year before. Robotics and coding at Coman Hill provide excellent opportunities for students to work at their own pace and to their highest level of ability.

WAMPUS

At Wampus, the technology curriculum has changed dramatically since the new STEAM Lab, Hub 21, was created in 2016. Thanks to the generosity of the Byram Hills Education Foundation, the open space boasts four interactive Nureva span walls, Ozobots, LittleBits, 3D printers, and Google Expeditions.

Wampus students are presented with several exercises on Digital Citizenship and Digital Literacy as an essential part of the curriculum.

“We have Google Slides and Google Suite for Education. We don’t have to teach students how to use it because they



Wampus students working on Codey Rockies.

instinctively know and teach each other,” said Mr. Al Lovelace, Wampus Building Technology Coordinator. “Now we are facilitating experiences in STEAM, robotics, and coding and in Hub 21 we are doing it all through student choice.”

Wampus Robotics builds from Coman Hill’s ‘Dash and Dot’ program. These robots help students learn the basics. Next, the students are introduced to ‘Ozobots,’ which are smaller, individual robots, programmed with colored markers to follow lines. Mr. Lovelace said, “From there we move to digitally coding on iPads.”

In the 5th grade, students are introduced to ‘Jimu’ robots. These robots are more complicated, need to be built, and have many pieces. “There are multiple challenging robotics and coding opportunities when students come into Hub 21,” said Mr. Lovelace.



Coman Hill students working together in a coding Dash Race.

H.C. CRITTENDEN MIDDLE SCHOOL

"Robotics and coding force students to use computational thinking," said Ms. Dawn Selnes, H.C. Crittenden Building Technology Coordinator. "It is in the HCC BoT Spot when students start to apply their knowledge from elementary school into task-based commands." Solving problems with technology to improve the lives of others, Empathy Based Design is an essential part of the HCC curriculum.

Ms. Selnes offers video tutorials that give students hands-on knowledge of how to program a robot but does not tell them how to conquer every obstacle. "Students have to think about how to take the information they are given and use it towards the challenge they are being tasked with," Ms. Selnes said. "To direct their robot with precise instruction the students apply proportional reasoning and math to figure out how to get their robot to go an exact distance."

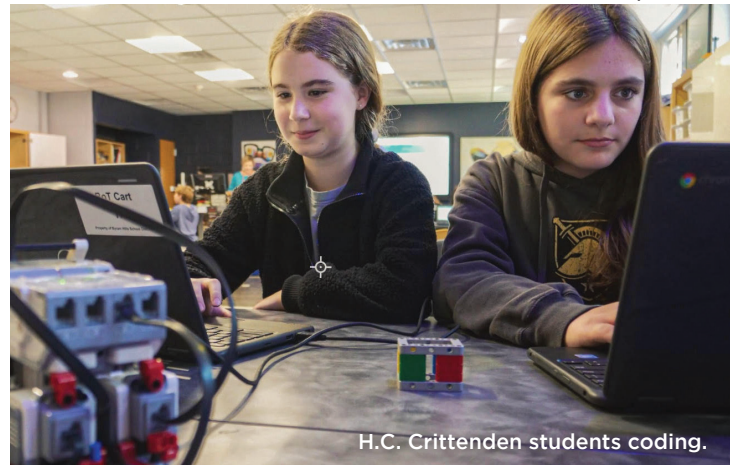
In Grade 7, students are introduced to 'Sphero Bolts', which are little round robots that roll on the floor and are highly programmable. There is also Misty II, a humanoid type of robot that can be programmed in several ways.

Students learn to write code by sampling a variety of methods as they get exposed to different 'languages.' They start with block coding through a variety of platforms including Scratch and then move on to Code Avengers where they can choose to focus on different languages like Python, C++, and JavaScript.

"If you can problem-solve, debug, and know how to code, even a little, it makes you so much more marketable today," said Ms. Selnes. "I try to let students come up with ways to solve their issues independently by using the 5 C's. They must think creatively and critically, communicate, collaborate, and work as a community." When students complete a challenge, they are so proud of themselves.

BYRAM HILLS HIGH SCHOOL

"The first thing I ask of students in a Robotics 1 class is to take apart a robot," said Mr. Peter Lichten, Byram Hills High School Building Technology Coordinator. "I keep robots from prior years so students can dismantle them. This helps with manual dexterity to manipulate the different parts and gives students a sense of where the motors and gears are located."



H.C. Crittenden students coding.

"Many students are worried that they don't know how to code," Mr. Lichten said. "But within a short time, everyone grasps the key concepts. They begin to see the sequential nature of coding and the step by step process."

Students are then given a little robot chassis, which is sometimes referred to as the robot's frame and allows mobility. "I give students all of the parts they need, including a motor, battery, gear, and a shaft and explain the goal," said Mr. Lichten. "For example, drive your robot and park it in a space within the arena." Mr. Lichten's three Robotic electives are structured in the same way. Students are given a problem and the opportunity to solve it.

Mr. Lichten said, "The robots are a means to an end. We're using them to develop problem-solving skills. It is taking something that's intrinsic, that allows you to conquer one big objective and solve a million smaller problems within it yourself."

Robot Master is the third class available in Robotics which allows students to build robots for a VEX competition. In the VEX Robotics Competition, student teams are tasked with designing and building a robot to play against other schools in a game-based engineering challenge. This is the third year Byram Hills has participated in the competition.

"Robotics technology is challenging and it helps students see things in the real world and not just on a screen because it draws upon their powers of observation," said Mr. Lichten. "It's tangible, 3- Dimensional, and students love seeing that they caused something to happen."

Today's students will live and work in a dynamic, technology-driven world. "Computer Science, robotics, and engineering all help students understand how technology works, increases ability to code practical applications, develops creativity, fosters innovative/critical thinking, encourages collaboration, and promotes inclusivity," said Dr. Andrew Taylor, Byram Hills Director of Technology. "Byram Hills is preparing our students for the future."



Byram Hills High School students manipulating a cube stacking robot.

REGENERON SCIENCE TALENT SEARCH SEMIFINALISTS



Pictured from back left: Sam Aberman, Owen Skriloff, Spencer Karp. From front left: Carolina Pedraza, Alexa McGrath, Meredith Mayers.

Byram Hills High School is proud to announce that six members of the class of 2020 have been recognized as semifinalists in the Regeneron Science Talent Search. These students, Sam Aberman, Spencer Karp, Meredith Mayers, Alexa McGrath, Carolina Pedraza, and Owen Skriloff were chosen from a pool of 1,993 students from 659 high schools, across 49 states, and 8 countries. This is one of the most prestigious science and math competitions in the nation and Byram Hills High School led Westchester County with six scholars.

Titles of the six Byram Hills semifinalists Regeneron Science Talent Research Projects are: **Sam Aberman:** "Facilitation

of an orthogonal IL-2 system for CAR T cell therapy through the novel knockout of the human IL-2 gene."

Spencer Karp: "A step towards energy-efficient infrastructure: A weekly supervised approach to energy signal labeling in commercial buildings."

Meredeth Mayers: "An evaluation of network-informed disease transmission parameters for the California puma population." **Alexa McGrath:** "An investigation of the medicinal value of the baboon diet: A comparative study across five species and six study sites." **Carolina Pedraza:** "Heightened anxiety in children and adolescents with tic disorders."

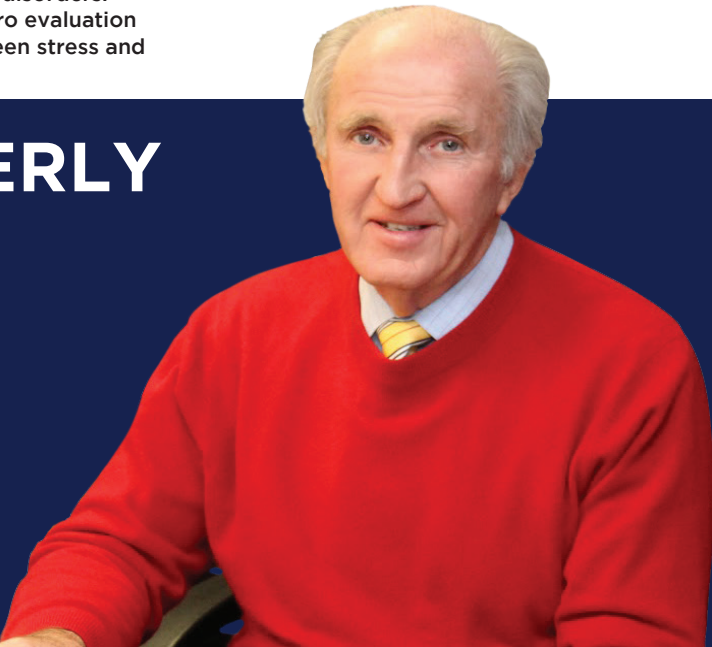
Owen Skriloff: "An in vitro evaluation of the relationship between stress and

mineralization through the use of a piezoelectric barium titanate composite."

The Regeneron Science Talent Search was founded in 1942 and is considered the oldest contest of its kind. It provides high school students an opportunity to present original research on scientific topics of their choice. This competition focuses on engaging motivated and promising young scientists who are looking to help solve societal and global issues. Regeneron awards each semifinalist and their school \$2,000 to support ongoing research.

DR. H. EVAN POWDERLY A TRIBUTE

Dr. H. Evan Powderly, former principal of H.C. Crittenden Middle School for 24 years, passed away on Friday, February 7th. Dr. Powderly played a key role in shaping the curriculum and structure of the Byram Hills School District that many of our children continue to benefit from to this day. Dr. Powderly was a man of character, integrity, and kindness. We will always remember his words each morning at HCC. "Make it a great day, or not, the choice is yours." Thank you, Dr. Powderly.



COMAN HILL STUDENTS SHARE FINE ARTS WITH THE COMMUNITY

In a traditional fine arts education, you may recall singing in a choir or drawing in an art class. At Byram Hills, students are digging deeper and connecting their learning to the world outside. “The Byram Hills Fine Arts Department is focusing on teaching students how to connect and respond through the arts” said Deepak Marwah, Director of Fine Arts. “We want students to engage with all four of the creative processes outlined in both the New York State Learning Standards in the Arts and the National Core Arts Standards. These standards encourage students to ‘create’, ‘perform/present’, ‘respond’, and ‘connect’ in order to gain more of an understanding of how the arts play an important role in their daily lives and how they can use the arts as a tool to communicate with the larger community.”

At Coman Hill, art and music play a large role in a student’s creative development.

In kindergarten, students learn and practice cutting basic shapes with safety scissors. The hand/eye coordination and working on their fine motor skills open new doors to exploration, learning, and creative expression and are significant for our youngest learners. Under the careful watch of Judy DeJarlar, Coman Hill art teacher, the children practice their skills to cut out circles, ovals and other shapes to create a variety of animals. “We combine shapes because making a dog is overwhelming but making a circle is not,” said Ms. DeJarlar. “Breaking things down into smaller components is easier for the students to comprehend and not as scary.” Ms. DeJarlar continued, “It’s important that students investigate and understand each element separately, and then put them together. That way there is a connection to where the shapes start, end, and what you can do with them.”

On March 18th, Coman Hill will be hosting its first evening Student Art Show. Students will be displaying their artwork and this will allow them to feel successful and proud while sharing their work with the Byram Hills community. On exhibit will be collaborative projects by grade and individual pieces of art. There will also be a way for those in attendance to leave feedback for students. The Art Show will take place March 18th-20th.

“This art show will establish a dialogue about what art is, what it means to create art, and give the students more motivation and enthusiasm because people are taking an interest,” said Ms. DeJarlar. “Sharing their process, thoughts and ideas about art will make it more meaningful to them. Hopefully, the students will enjoy art as they grow older and can participate in some way, understanding its importance and meaning in society.”



Lailah from Mrs. Wilken’s kindergarten class.

In addition to cultivating their skills in visual arts, Coman Hill students also take part in an exciting music program. Music is an extremely important subject for all children leading to better brain development, increased human connections, and self-expression.



Mrs. Hanrahan’s class focused on their instruments.

Studies show that listening to music can benefit one’s overall well-being, help regulate emotions, and create happiness and relaxation in everyday life. In some cases, it can even reduce anxiety, improve memory, provide comfort, and promote a positive mood.

At Coman Hill, the students are constantly learning and evolving. Emily Capalbo, Coman Hill music teacher said, “Our culminating performance at the end of the year is an opportunity for these young musicians to apply the content they have learned, synthesizing their knowledge in an authentic and tangible way.”

Music is meant to be shared. Ms. Capalbo’s students feel the ripple of that concept both in the classroom and in performance. They are immersed and engaged, finding connections to other disciplines such as language arts, history, math, and other cultures as they learn musical concepts. “The students begin to recognize what a special opportunity it is and seek ways to be successful. To support that motivation, I provide online practice materials,” said Ms. Capalbo. “I give them tips, helping them find success in autonomy. As performers, we are responsible for communicating the meaning of EVERY song. Sometimes that may mean checking opinions at the door and doing what’s best for the team.”

An important part of every Coman Hill performance is that each student has a special job, such as announcing a song or playing an instrument. “It is a role that they are exclusively responsible for,” said Ms. Capalbo. “Children feel empowered by having a featured moment. It gives them something to connect to.”

On the day of the performance, the excitement throughout the building is palpable. When students collaborate and successfully achieve a common goal, it builds confidence, supports student bonding, and allows students to celebrate their accomplishments.

“At Coman Hill, we are delighted that our fine arts curriculum enables our students to find ways to creatively express themselves and connect with each other,” said Principal MaryBeth Crupi. “The children thoroughly enjoy integrating the arts into their everyday lives.”

WAMPUS SCHOOL MASTER SCHEDULE BOOSTS STUDENT SUCCESS



Wampus students enjoying intramurals.

A solid and successful master schedule is fundamentally important and appropriate for the growth of all students. It is a function of the school's philosophy, a reflection of its vision, and a blueprint for its resource allocation.

In September of 2018, the master schedule at Wampus went through a major overhaul.

Prior to Mrs. McInerney's arrival as principal in September 2018, she held individual conferences with faculty, staff, parents, and administration to understand what practices would be beneficial to continue. The overall objective was to build a structured schedule that all children could follow, foster calmness, and be developmentally appropriate for grades 3-5. This concept goes hand-in-hand with the Wampus community goals.

"At this stage of development, children are working hard on executive functioning so they can be auditorily, receptively, and visually organized," said Wampus Principal, Mrs. Peggy

McInerney. "Students need an efficient yet simple school schedule so they know and understand what each day looks like and how they can be responsible for making it their own." This schedule allows ownership for students to learn how to organize and manage their responsibilities.

The next layer was making the master schedule a good fit for the teachers. "In the elementary school world, teachers are with students the entire day delivering academic, social, emotional, and behavioral instruction. The master schedule has to be organized, simple, and calm so teachers are able to create a learning environment that works best for them and their students," said Mrs. McInerney.

"The master schedule needed to ensure the emotional well-being of all students and teachers and this was non-negotiable," Mrs. McInerney said. A Wampus program that has benefited from the master schedule change was recess intramurals. The three physical

education staff members, Chrissy Motta, Doreen Cohen, and Gina Whalen rebuilt and transformed intramurals into an all-inclusive plan that is flourishing.

"This program was able to be revitalized because we maximized children's time and were able to provide more freedom in their schedule," said Mrs. McInerney. The students look forward to participating in organized athletics during recess. Intramurals incorporate all of the attitudes and beliefs that are part of Wampus' values including grit, perseverance, growth mindset, friendly competition, sportsmanship, respect, ability to play with students from other classes, and general engagement.

There is a universal feeling of safety and trust at Wampus that is part of the culture. Students need structure to help with development and a well-constructed master schedule delivers the right building blocks essential for success.

MASTERING THE MASTER SCHEDULE AT BYRAM HILLS HIGH SCHOOL

The master schedule is considered by some to be the most important component in a school. It reflects the values, beliefs, and attitudes of the community. The master schedule is the heartbeat of the school and the foundation for how students are educated in the building. The master schedule is developed around student needs and District goals with a focus on helping students achieve the mission of the District.

"At the beginning of this year, we decided to dedicate the majority of our professional development to investigating alternative master schedules," said Mr. Christopher Walsh, Byram Hills High School Principal.

Prior to that decision, faculty, staff, students, and some volunteer community members had been engaged in unpacking the Byram Hills High School master schedule for over two years. What triggered that exploration was the collaboration with Challenge Success and 'The Stanford Survey of Adolescent School Experiences' they administered with the student body. "The data showed that there were opportunities for us to support our students to be less anxious and stressed out, and more engaged in their learning," said Mr. Walsh.

Challenge Success looked at seven different categories that make up the overall student experience. Those categories were workload, sleep, academic engagement, teacher care, parent expectations, extracurricular activities, and academic integrity. In most categories, Byram Hills students seemed to be on the extreme end. For example, the survey showed that Byram Hills students were getting an average of six hours of sleep a night instead of the recommended nine hours by the American Medical Association.

"In partnering with Challenge Success, we identified that two areas we could control were the master schedule and students' use of time," said Mr. Walsh. "We wanted to see if we could make a positive impact on our students and get some of the issues reported by the kids going in a different direction."

In addition to the work with Challenge Success, Byram Hills

also sent faculty members to college campuses to study student schedules and use of time on campus. The visits helped the faculty recognize areas to better prepare students for the college experience including ways to promote self-advocacy, project-based learning, and building strategies for improved executive functioning.

"From senior internships, we know that employers are looking for different things," Mr. Walsh said. "That led us to the question: Is our current master schedule able to meet the needs of our students in terms of social and emotional skills, academic skills, 21st-century skills, soft skills, and future career skills? At the end of the last school year, Mr. Walsh organized a Master Schedule Steering Committee to plan the process for implementing a new schedule. Administrators and teachers made up the initial committee with students and parents becoming involved this school year.

To establish a focus, the committee reviewed the master schedule by asking the essential question, "What does Byram Hills value?" The committee invited various stakeholders from the community to participate in a series of interviews that helped the faculty gain a broader understanding of the community's values. The faculty had the opportunity to interview parents, college professors, employers, graduates, district administrators, psychologists and psychiatrists, and listen to what the community values.

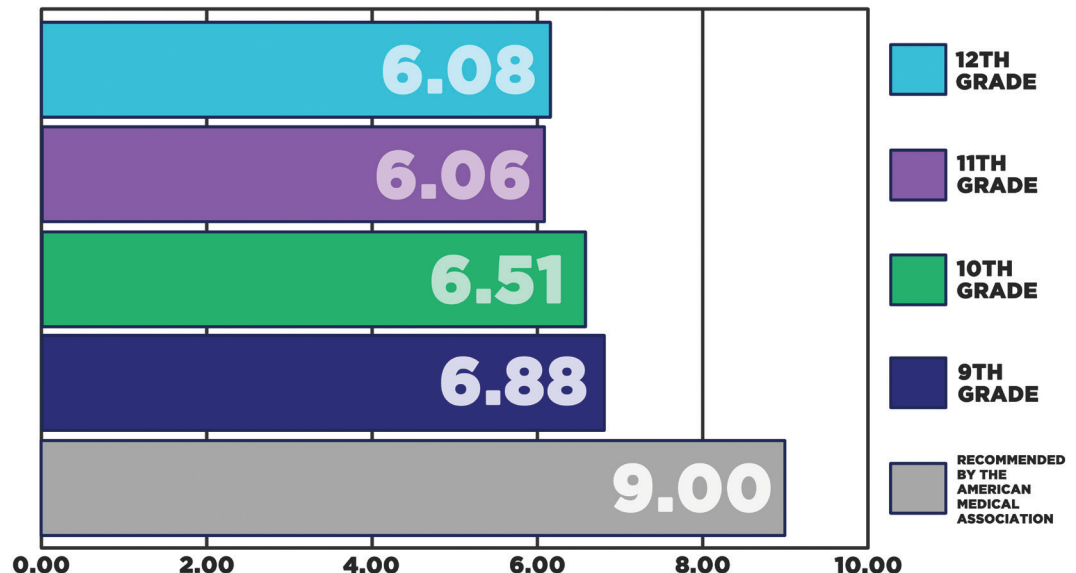
After the stakeholder meetings, the faculty ranked the values discussed during the interviews. A number of areas were identified as being critical to the master schedule, such as project-based learning, college and career readiness, student wellness, curiosity, student-centered instruction, global competence, and collaboration.

"The current master schedule has been in place since the 1990's and at the time it served a number of important purposes," said Mr. Walsh. "Our building and community are at a different place now and the needs are different than they were back in the '90s. The next master schedule will be a reflection of those needs."

The trend in education across the country is moving towards scheduling that allows for longer class periods that meet fewer times each day and each week, or variations of that. "We think a modified version aligns with many values we would like to support," Mr. Walsh said. "However, there are new types of flexible schedules that may also be suitable for our school."

The Master Schedule Steering Committee will continue its work, whether it be a total revamp or a tweak or a hybrid of other schedules until a recommendation is made," Mr. Walsh said. "I feel confident that with our process in place, the master schedule we recommend will be the right one for Byram Hills." The earliest implementation of a new master schedule would be for the 2021-2022 school year.

AVERAGE HOURS OF SLEEP BY GRADE LEVEL ON A TYPICAL SCHOOL NIGHT TAKEN FROM THE BYRAM HILLS CHALLENGE SUCCESS SURVEY





BYRAM HILLS SCHOOL DISTRICT
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Our Mission

In an environment of mutual respect, the Byram Hills School District and its community will provide students with the means, the knowledge, and the opportunity to excel in order to become productive and responsible citizens of the twenty-first century.

"A great place to learn."

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WELLNESS AT HCC

In recent years we have seen a surge in the importance of emotional well-being in society, especially in schools. Through research, we continue to expand our knowledge of the developmental phases of adolescence and how to better support our students as they encounter complex pressures in their lives. As middle schoolers, students typically seek to be the manager of their own academic and social growth. "As they are striving to be independent thinkers and achievers, H.C. Crittenden must find a balance to honor each student's autonomy while providing the support and 'safety net' to ensure their emotional wellness," explains Ms. Kim Lapple, H.C. Crittenden Principal.

Keeping that in mind, HCC has integrated relevant and thoughtful new initiatives to assist in the overall wellness of students. These initiatives utilize the team approach that drives the work in middle school and capitalizes on the strong sense of community.

This work began during the 2017-18 school year through a survey conducted in partnership with Stanford University's Challenge Success program. "Challenge Success was a critical impetus for our work with wellness," said Ms. Lapple. "The data provided to us served as a launching point for our work and a lens into our students' perspectives about their lives." The H.C. Crittenden Wellness Steering Committee, comprised of school stakeholders, analyzed and processed the data to identify areas to support student wellness in their learning community. Since then, the work has grown tremendously and many programs have been implemented based on the new learning.

An immediate result was the implementation of team emotional wellness goals. Each grade level and discipline team developed a goal that would focus on student wellness.

The special education team supports the goal of helping students build an awareness of their current and future educational programs through a better understanding of "self." "Team Wellness goals are one of our secret supports in helping our students," said Ms. Lapple. "Teachers don't necessarily formally announce how they are collaborating to ensure students' wellness, but it is happening every day. It's part of our daily conversations as professionals."

Another purposeful change at HCC was to incorporate a wellness theme. The school used one of the days to implement 'student choice' activities. "Students could select workshops which had a focus on wellness," said H.C. Crittenden Assistant Principal, Angelo Ancona. "The workshops allowed students to explore their talents with faculty and guests." They were designed to let students be uninhibited in a non-competitive environment and included groups such as, Ambidextrous Art in which students drew with both hands at the same time, creating symmetrical designs, Inside the Music, Inside Yourself, in which students channeled their emotions into art, and Yoga which challenged students to try different poses and games that promote physical fitness, strength, flexibility, and balance.

This past January, H.C. Crittenden continued the important work of encouraging kindness in its community. This was the seventh year of #Kindness, created and inspired by the Guidance Department. "#Kindness is a week-long celebration that challenges the HCC student body to grow together based on respect and kindness towards one another," said Heather Graham, H.C. Crittenden Guidance Counselor. "The dedicated full week began with a keynote speaker, Mr. John Halligan, who lost his son to suicide in 2013. His presentation, "Ryan's Story", covered how to deal with bullying, cyberbullying and teen depression.



HCC students participating in yoga.

He spoke about how to reach out for help when needed and the significance of being kind to others." Another kindness related event included a "Be the I in KIND" photo board, where students could take a positive picture to post on social media.

Finally, a new initiative for this school year is a student-based year-long project called Project Me, where self-reflection is paramount. Project Me has strong connections to Challenge Success and wellness. "It was driven by the idea that we want our students to value self-growth over grades earned," said Ms. Lapple. "Student choice is important in determining their personal goals to support active learning."

This year-long reflection will lead to a presentation and celebration at the end of their journey. As a result, students will be more present in their own learning, make their own decisions and then reflect upon those decisions.

By definition, wellness is an active process of striving towards a healthy and fulfilling life. Based on the collaborative efforts between Challenge Success and HCC, steps are continuously being taken to help students feel comfortable and confident in and out of the classroom while promoting and maintaining wellness.