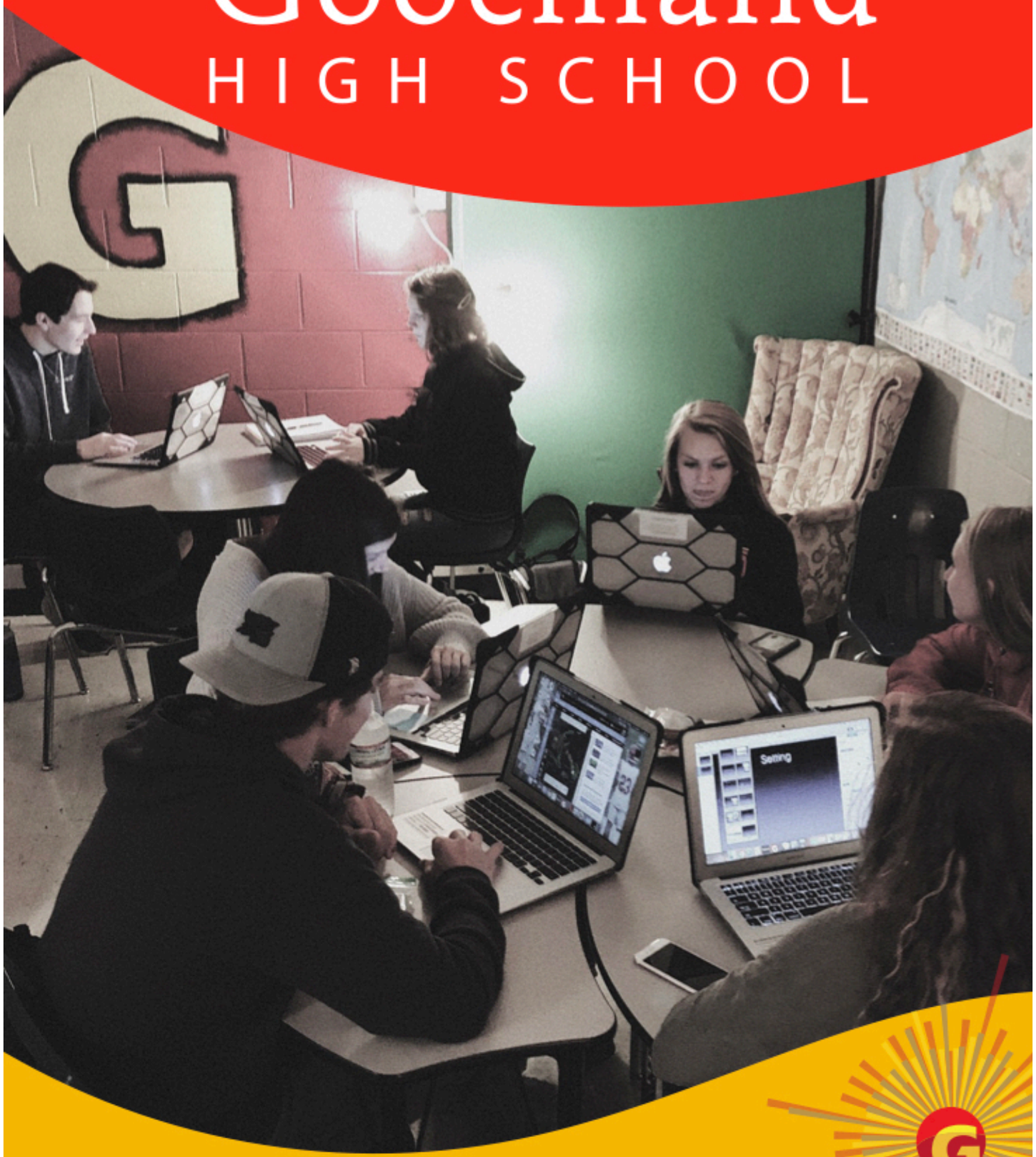
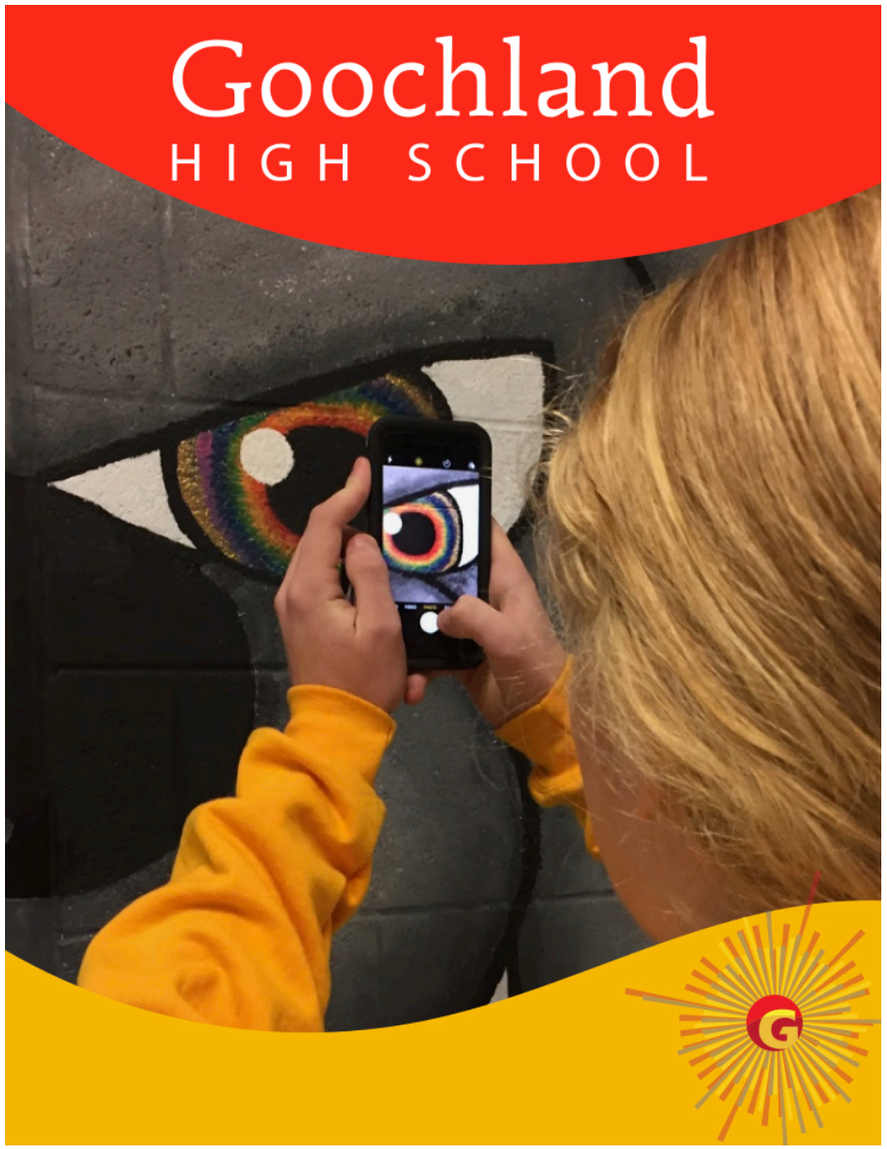
Goochland
HIGH SCHOOL



Home of the Bulldogs



Thank you for reading about our story. Goochland High School went 1:1 with MacBook Air laptops after many years of using MacBook and iBook laptops on shared carts in 2017. Our journey with technology is helping prepare graduates to be career and college ready.

August 30, 2019

Goochland High School
3250-A River Road West
Goochland, VA 23063
ghs.goochlandschools.org

Distinguished School

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Brian Hahn, Assistant Principal
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Overview

At Goochland High School, we believe that learning is a lifelong process, and school is the foundation for developing required skills, attitudes, and passions for success. We will continue to focus on the growth of each individual student. We will also encourage them to work collaboratively, think creatively, solve complex problems together and remain curious and persistent. All of these tools are essential to a successful future.

Maximizing the Potential of Every Learner

Goochland in 2014 debuted a strategic plan with an instructional goal of ensuring that every student had experiences with deeper learning. Taken in the context of neuroscience and educational psychology, providing deeper learning opportunities to students equates to scenarios that capture the ways humans learn best. This doesn't mean it's the easiest approach for us as teachers, but instead is a very learner-focused way to think about learning. But what's more important is for us to be clear about why we have committed ourselves to a deeper learning approach.

It's who we are.

The vision of the Goochland County Public Schools is to inspire the next generation to make a positive impact. This means we not only want our students to graduate well-prepared, but to be inspired to make the world a better place. Authentic experiences? Yeah, those sound important. Applying knowledge to new situations? Check. Skills and dispositions that include high tech and high touch? Certainly.

The mission of the Goochland County Public Schools is to maximize the potential of every learner. Surface learning isn't enough. We need to look for ways to individualize and personalize the experience students have to meet their needs, aspirations, and goals. The design for teaching we employ from PreK through high school must be aligned toward this mission. The student-focused approach toward learning coupled with a growth mindset we feel is a sure recipe for helping ensure we don't miss opportunities for engaging our students, staff, and families in profound and meaningful ways.


Setting

Chapter 1

Vision

Every student, every day.



Vision

Shared Leadership



Dr. Chris Collier loves serving as the principal of Goochland High School. At GHS we truly **value** the ideas and opinions of our students, staff and community members. We believe that being **intentional** about the methods in which we collect their thoughts and ideas is at the core of creating an environment where our **students thrive**. Through the use of cloud-based networks and Schoology, Goochland High School provides digital platforms that allow stakeholders the opportunity to **communicate and collaborat**e on the development of school-wide initiatives and instructional programs.

In terms of our technology implementation at GHS, our **instructional vision** is enhanced with a deep collaboration between **Dr. Hendron**, Director of Innovation & Strategy for the division. M**r. Peter Martin**, Director of Technology supports our infrastructure and security needs and is always just a text away. And our Instructional Technology Coach, **Ms. Catherine Richards**, co-develops professional learning for teachers at GHS.

Leadership Team

Each month, Dr. Collier meets with his teacher leadership team which consists of assistant principals, administrative interns, school counseling director, activities director, department leads, instructional technology coach, bookkeeper, and library media specialist. The Google suite allows the leadership team to share notes, develop new ideas, and create **new learning opportunities** that ensure Goochland High School remains on the cutting edge of innovative learning experiences for students. Yearly retreats provide opportunities for cross-curricular planning and team-building exercises which **strengthen the bonds** between leaders within the school.





Teacher Advisory Committee

In addition to his work with the Goochland High School Leadership Team, Dr. Collier encourages each department to select a representative for his Teacher Advisory Committee (TAC). This group meets at the conclusion of each month to discuss concerns, highlight accomplishments and develop strategies to **improve the overall functions of the school**. TAC members are encouraged to be open, honest and solution-focused, knowing that their ideas will be shared with the entire faculty through the use of weekly Schoology announcements.

Business & Education Roundtable

Each year, Dr. Raley, Superintendent of Goochland County Public Schools, invites business representatives from the area to a Business Educators Roundtable. Representatives are provided with information regarding instructional programs offered through GCPS, given the opportunity to meet and talk with some of our high school students, and solicited for feedback to improve our schools. Those conversations have led to improvements to course offerings, implementation of Mock Interviews for all seniors and CTE completers, a yearly Career Fair and our annual CTE signing day. In addition, the feedback received during those meetings ultimately helped to drive our division-wide Profile of a Goochland Graduate.

Ultimately, we understand the importance of community partnerships that help our students become career-ready when they leave Goochland High School.

This group has been a catalyst for change with regard to school climate and improved teacher morale.

Student Advisory Committee

At Goochland High School, we have created a **student leadership hybrid organization**, which combines the traditional SCA and class officers with the "Principal's Advisory Committee," a committee which tasked the elected student leaders to **provide feedback to school administration** as well as to serve as student **liaisons** to the GHS student body. Both the SCA and the Advisory Committee served similar purposes and thus were combined with both Dr. Collier and Mrs. Dewey (SCA advisor) as advisors over the new organization. The purposes and goals of this committee have evolved over the course of the last few years and likely will continue to do so in the future. Initially, the goal of the committee was to improve school climate, largely utilizing existing events such as Homecoming, spirit week, pep rallies, etc. to do so. However, with the involvement of some extraordinary students who embraced their leadership positions, the **goals of the group evolved**. Within the overarching committee, students join subcommittees focused on school beautification, community service, and school climate, which **allow each student to focus more specifically on a task of interest**. These subcommittees involve themselves in a number of endeavors, including commissioning murals in the hallways, adding additional spirit days to the calendar, organizing a school-wide community service



day, "Helping Paws Community Day," etc. Additionally, these leaders are in charge of their own class committees to achieve more class-specific endeavors, including coordinating their Homecoming hallway and float decor, meeting with administrators to negotiate Senior Privileges, and many other events as determined by each year's class. Amidst this, these students serve as liaisons between their classmates and the teachers and administrators. They provide feedback concerning administrative initiatives in order to present the students' perspectives, and they give input concerning the students' concerns or issues ranging from the use of bathroom passes to exam schedules, etc. In total, this committee serves to provide

more student voice in the day to day activities of the school while working to create a **climate of unity and excitement that goes beyond academic**s. The committee's advisors assist with logistics and bureaucratic necessities, but they also help motivate the students, give suggestions or advice when needed, and generally aid them as they work to **build their critical thinking and problem-solving skills**. They encourage students' collaboration, creativity, and service to their classmates, school, and community. The end goal is for students to **feel empowered to be active stake-holders in their classes and school**, which will ultimately create a school climate of mutual respect, excitement, and engagement.

Students gather together to participate in Helping Paws, a service learning day across Goochland County.





Goals and Sustainability

Division Technology Plan

Students and teachers from Goochland High School served on the division's technology committee throughout the 2018-19 school year and **three main goals** were established for sustaining the technology program over the next five years.

Access. Provide anytime, anywhere access to learning within a safe environment [tech support, data management, resource distribution, school safety],
Learning. Support and empower student engagement with learning [student experience, teacher preparation, instructional support],
Digital Citizenship. Students develop expertise and experience as model digital citizens [change, behaviors, school culture].

As objective measures, the plan identifies three objectives:

1. 100% of students will have **access to adequate bandwidth** to a filtered network experience on campus and off using mobile computing devices.
2. 100% of students will experience **deeper learning** as part of our instructional program based on a frequency adopted annually by our schools to promote student engagement with learning.
3. 100% of students will pass our **digital citizenship** protocol at the end of grades 5, 8, and 11.

Access

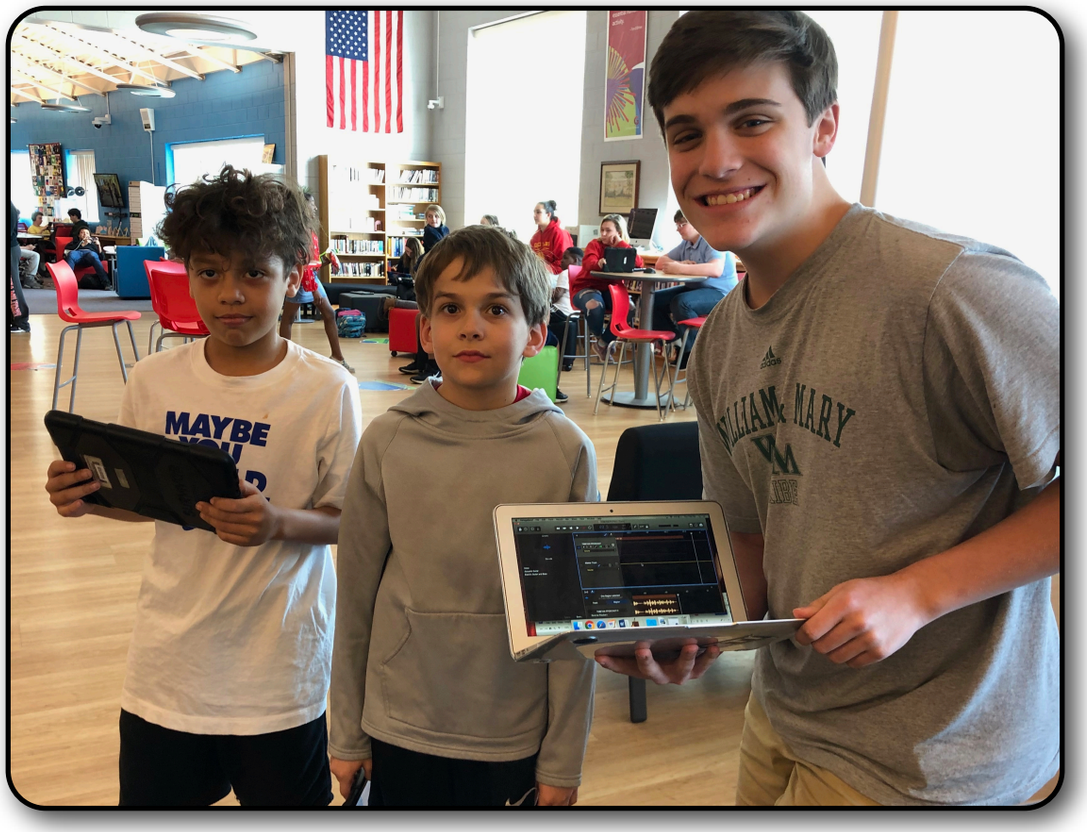
To sustain the learning environment necessary to facilitate deeper learning, we must continue to provide 1:1 devices to students, as well as teachers and paraprofessional staff. Exploring and providing access to emerging technologies that support deeper learning across multiple content areas will ensure we are facilitating the most authentic and connected learning experiences for our students at all times. Goochland County Public Schools is also dedicated to eliminating the internet access challenges faced by students in our community, so our students feel empowered to explore their curiosities both in and outside of school. Lastly, we constantly assess the use and needs of our community in their usage of digital learning platforms to improve communication among all stakeholders.

Learning

In supporting student engagement with learning, it is necessary to not only provide equitable access to resources across the division, but to also facilitate professional development focused on high quality instructional, learning, and student assessment strategies that maximize the impact of technology resources. This is done with the support of an in-house instructional technology coach, division instructional coaches, device technicians, and selected apps and services to meet the needs of all learners. Offering coding opportunities and virtual courses to all students in all grade levels allows Goochland High School to meet state computer science requirements while also providing multiple ways for our students to learn.

Digital Citizenship

Ensuring our students are model digital citizens is a high priority for our school and division. By helping our families better understand how technology supports their child's learning and providing training for students on digital citizenship and device care at the start of, and throughout the school year, our students can learn safely online both in and out of school. Not only will our staff model ethical behavior using digital technologies and use model lessons to support digital citizenship, but they will offer students opportunities to practice this by maintaining a digital online portfolio showcasing their best work, to be exhibited at the end of 5th, 8th, and 11th grades, and creating outward facing media that conforms to copyright law and best-practices for digital citizenship. The division will maintain security, filtering, and monitoring systems, made available to educators, to help identify student choices that require intervention.



Chapter 2

Learning



Goochland High School senior, Devin Lane, shares how technology has enhanced his ability to share his artwork and helped him prepare for his future.



Teamwork

Adventure Games

In an ever changing landscape of how our students **communicate and interact with each other,** we have found it essential to push kids to work together in many different scenarios. Through GHS' Adventure Games classes, we have been able to put students in situations where they are challenged to use teamwork with varying degrees of difficulties and consequences. This inevitably leads to reliance on each other in the midst of triumphs and failures. Students feel empowered on the first day of class to try new things and allow for opportunities to stretch themselves both **physically and cognitively**. Our hope for these students is that they will gain important life skills that will help them work with others, communicate better, and be equipped to better serve the communities they will ultimately be a part of when they graduate from Goochland High School. All of this happens when an emphasis is placed on **building true relationships** with students and with each other.

Recently, we have been able to add some great new activities to enhance our Physical Education/Adventure Games program. This has been made possible with an initiative that our Goochland Educational Foundation started a few years ago. The Strategic Innovation Grant program has helped to bring some ideas and visions for our program to life. We have been able to build an Archery Range, a Low Ropes/Challenge course, and a GaGa ball pit. Our students have already benefited greatly and will continue to see the benefits over the years to come.



These projects could not have happened without the use of **technology and collaboration** between other amazing teachers in our secondary complex. The **partnership** between the CTE

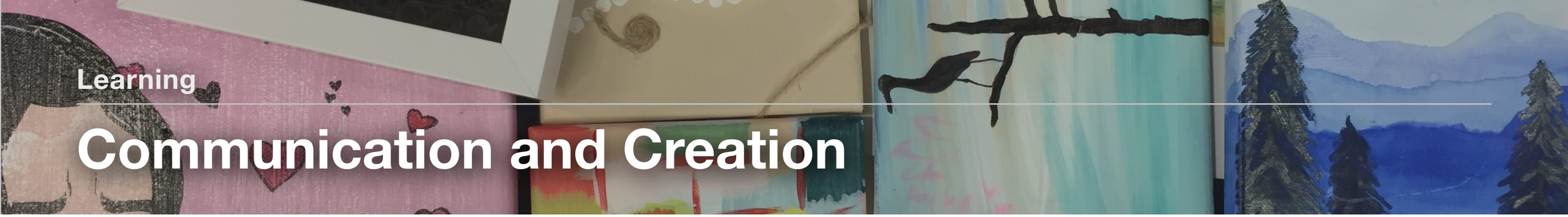






and Physical Education department created many opportunities for staff and students to work together. Mr. Greenway's carpentry classes helped design the Archery Range and determine material lists, while Mr. Verrastro was having his heavy equipment classes create real life work sites and problem solve ways to get equipment to the location of the Low Ropes/Challenge course. Mr. Allen's forestry classes helped determine connection points to trees and ways to help make sure we minimized the disruption to the wildlife near our construction site. So many pieces had to **come together to make it work**. Many of our students got to see first-hand how we as teachers were able to work together and collaborate during the different phases of these projects. From spreadsheet supply lists, schematic drawings of structures, and surveying equipment, there were countless ways **technology made this project possible**.

The **legacy** of these projects and what they represent will continue to change the lives of our students for years to come. We are excited to see what the future holds for my students as we continue to challenge each other, work together and learn from both our mistakes and successes.



Communication and Creation

Exploring World Languages

The integration of technology into classrooms at Goochland High School has opened up a new world to students and how they are able to **apply their learning**. It is the goal of each and every teacher to make their subject personal to their students, and to demonstrate to students how it can be applied to the world in which they live. One way this is shown in the instruction that occurs within Goochland High School is through the World Language department. Technology has not only allowed teachers to transform how languages are taught but has also allowed students to engage with the content in a **real life context** and helps expand their learning **beyond the walls of the classroom**.



Students use the video recording site Flipgrid to record oral responses to written prompts that relate to their current unit.

Technology is applied in a variety of ways, from basic everyday uses that get students active and ready to learn, to more long term and collaborative projects. Some of the students' favorite things to do are simple interactive activities that are done almost every class period.

In addition to this, students are able to use technology in applying what they have learned through project based learning and other collaborative activities. Every project a student works on in class makes a **connection to the outside world**. Examples of this include using Pages to create an ebook to tell a Dia de Los Muertos themed story, iMovie to record music videos with a "save the world" message, or podcasts recorded in GarageBand that discuss fashion trends throughout time. In the end, this is all done so that students are able to work with the language in an authentic context. The use of technology gives the students the freedom to express what they know in a variety of ways and

allows them to apply and grow these skills within the context of using the language to **communicate with the world around them**.

Robotics

Goochland High School offers students the opportunity to participate in the **FIRST Robotics program**. This program provides a platform for students to engage in the creation of a robot that must conform to specific constraints while allowing our students the ability to think creatively and demonstrate their **engineering, communication, and leadership skills**. Each year a different challenge is given to students all over the world. Students receive the rules governing the competition in January and then have 6 weeks to develop a robot from materials they have sourced themselves. We have many different sub-groups on the team. Some of the sub-groups include programming, build, design, safety, pneumatics, and electrical. These teams develop their skills and help work together to design and build a robot to be entered into several competitions in March and April. Every piece on the robot is **designed, manufactured, and programmed by the students**.



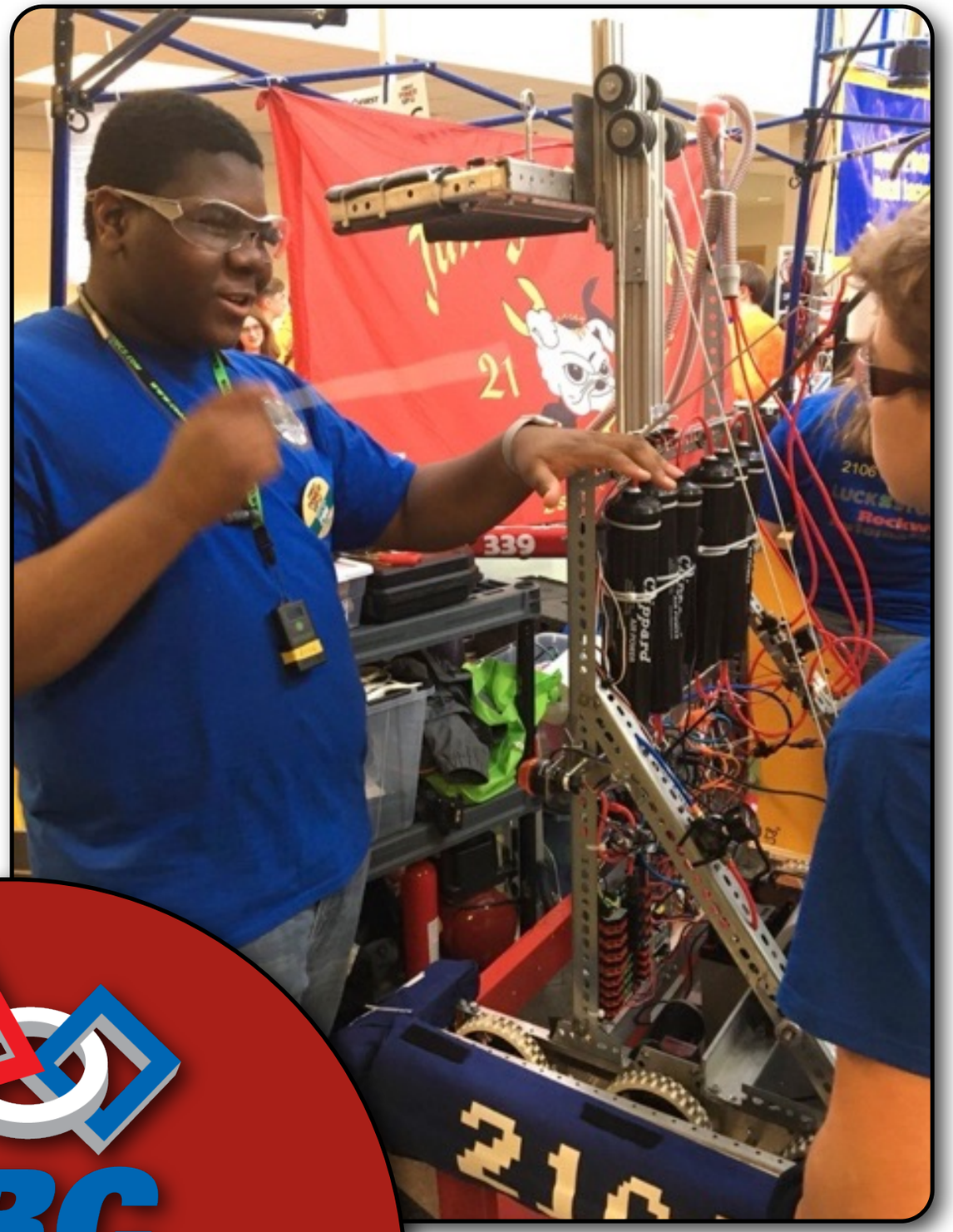
The competitions are designed so that students lead their teams in coopetition. This means students must **work together** with other teams during some matches and against the same teams during other matches. This teaches students to communicate about their design and work with other teams while also providing an exciting competitive environment. Also during the competitions, judges from companies in the STEM field discuss the creation of the robot with students from each team. Students must communicate their process and design philosophy with the judges in order to win awards. They must demonstrate their knowledge and **explain the reasoning** behind their design strategy. Students work hard to develop CAD designs as well as other presentation materials to show that they have what it takes.

The Goochland High School robotics team, the Junkyard Dogs, has improved dramatically over the last three years. They have been leaders at the competitions as Alliance Captains (this means they have to end the qualification matches in the top 8) and have won **design awards** such as the Creativity Award and Industrial Design award. Students from Goochland High School have also been recognized as Dean's List Semi-

Finalists and Finalists. The Dean's List award is given to students who are able to communicate how their participation in FIRST Robotics has helped themselves, as well as their community.

FIRST Robotics increasingly holds students to high standards and provides real-world applications to learning. Through this program, we have students who at one time said they had "no people skills", but now ask if they can go talk to other teams about their designs. The **confidence and communication skills** the students gain are two incredible benefits this program provides.





FRC®
FIRST® Robotics Competition

Personalization of Learning

College and Career Readiness

Each student who enters Goochland High School does so with a virtual Academic and Career Plan (ACP) that outlines their interest and plan for post-secondary goal attainment throughout high school. The ACP is revisited and updated annually as students leverage technology and time in class to **explore new interests**, research college and career options, and select new courses and new activities that align with their sometimes-changing individual goals. Goochland Bulldogs are lucky enough to have many avenues to conduct this **personalized research** into post-secondary options, ranging from internships and annual Career Day experiences to virtual exploration using a host of online resources made available to them at their fingertips by our school's 1:1 initiative. Virginia Wizard, MajorClarity, and Big Future are but a few of the sites that Goochland students use regularly to better inform the development of their **personalized Academic and Career Plans** while in high school.



Furthermore, the school continues to add a variety of Academies geared towards allowing students to concentrate in a field of interest, but also allowing the flexibility of additional electives that nurture other parts of the whole student. Current Academies include the **Advance College**

Academy and the **Academy for Architecture and Construction**, and plans are underway to expand the model to include an **Academy for Agriculture** and another for **Health Sciences**.

Blended Learning Opportunities

Goochland High School offers several **unique opportunities for students to personalize their learning** via online learning platforms. Currently, we offer five online programs: Goochland Flex, Edgenuity, Virtual Virginia, and Blue Ridge Virtual Governor's School.

FLEX is our alternative learning option to provide the best environment for the struggling student to be successful and receive a high school diploma or GED by offering the opportunity to make up credits and retake courses required for graduation. Each student is enrolled in and completes coursework using the Edgenuity Virtual Lab with teacher support. Each completed course satisfies the credit requirements for GCPS and Virginia. Students seeking a GED are enrolled in and complete GED Prep courses using the Edgenuity Virtual Lab and complete the required finance course online. The GED program is supported by a grant from the Virginia Department of Education via the ISAEP grant program. The best part about FLEX is the flexible atmosphere. Students work at their own pace on course work, so they become responsible for being independent learners. Students also collaborate on a yearly project often with another GHS class, such as the Herb Garden project, a collaboration with Culinary Arts.



Edgenuity also provides a number of online course offerings for students in a standard classroom. Students can gain electives, take required courses, or repeat a failed course via the Edgenuity classroom. Students are offered electives in world languages, the arts, career preparation and career skills in addition to required courses such as Economics and Personal Finance. A resource teacher is available in the classroom; however, students work independently on selected course work. Many students have used this program to graduate a year early by taking English 12 and Government online during their junior year or in the summer after their junior year.

As a program of the Virginia Department of Education, Virtual Virginia (VVa) offers online Advanced Placement (AP®), world language, core academic, and elective courses to students across the Commonwealth and nation. Virtual Virginia is committed to providing high-quality, rigorous course content with the flexibility to meet schools' and students' varied schedules. Students seeking courses not offered in the regular classroom or Edgenuity can enroll in several courses via VVa.

Blue Ridge Virtual Governor's School (BRVGS) is an advanced program for students who desire a rigorous program of study while staying at Goochland High School (GHS) and interacting with teachers and peers in virtual space for some classes. BRVGS offers a challenging curriculum that combines specially-designed governor's school courses with rigorous GHS courses. Virtual learning and off-site project work allow students to learn and collaborate with students from other participating school divisions. The application process is competitive and open to all rising ninth grade students. Students complete assignments, meet virtually with professors, and complete a final project presentation during their online courses. BRVGS students are offered several course options including engineering, health science, AP Computer Science, digital technology, AP Statistics, and cybersecurity.

Advance College Academy

The **Reynolds Community College Advance College Academy (ACA)** offers students the opportunity to earn an associate degree while completing the requirements of their high school diploma. ACA students graduate from Reynolds just weeks shy of their high school graduation, and this May we celebrated Goochland's second class of ACA graduates. This program allows students to challenge themselves with rigorous coursework so that they are more adequately prepared for post-secondary education. Within the program, there are multiple avenues that are being taken to personalize students' learning experiences through the use of technology.

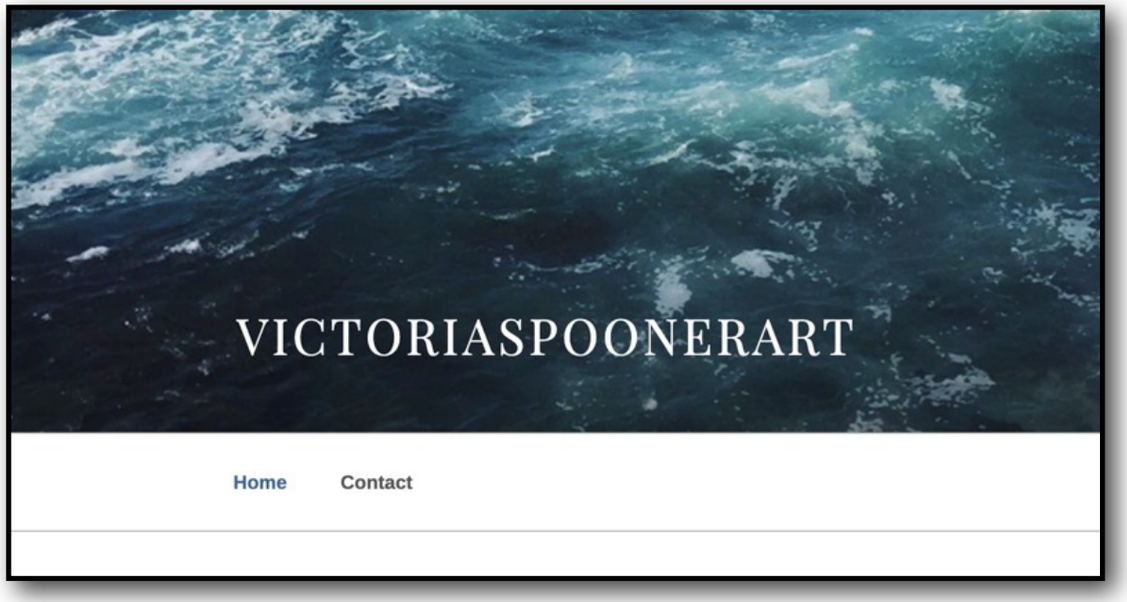
Reynolds provides ACA students with a career coach whose purpose is to support students throughout their time in the program, and facilitate college and career exploration. The career coach helps students complete several personality inventories via **Virginia Wizard**, an interactive online tool, to discover which career pathways may be best suited for them based on their interests and skills. From there, students may narrow down a list of careers that interest them, and then conduct additional research on the education requirements, salary, and whether or not the career is in demand. This allows the opportunity for further online research to determine which colleges and universities offer the necessary programs that will help guide them to their desired career.



In the classroom, ACA teachers are consistently integrating technology into their curriculum to not only deepen learning, but also to demonstrate new ways to help advance student work to college-level material. Prior to beginning ACA, most students have relied on the effortlessness of using Google and Wikipedia to assist them in research. As a member of the ACA program, all students have access to the Reynolds library database. As sophomores, students take a field trip to the Reynolds Goochland campus where they are given a demonstration on how to utilize this resource in their research. ACA teachers will then reinforce this in the classroom so students may learn how to conduct quality research by accessing scholarly and peer-reviewed journal articles. Additionally, teachers are personalizing student learning through the use of project-based learning with innovative technology. Students may be asked to work collaboratively to research a topic and then report their findings to the class with a media presentation of their choice with the exception of a PowerPoint. This forces students to challenge themselves and think outside of the box, rather than rely on what is comfortable.

The majority of ACA students will end up taking one online Reynolds course to complete the degree requirement for information technology and/or general education elective. This online course is taught by a Reynolds professor, rather than a Goochland High School teacher, and is undoubtedly a struggle for most students at first. While this is the first online course for many, and that is a challenge in and of itself, it is also their first time communicating with a professor that they do not know and get to see every day. This allows for the career coach to counsel students on the use of professionalism in emails, the pace of an online course, how to access materials in the course, and student accountability. While many students find challenges with this course, it is an excellent opportunity for a real world college experience that only adds value to their time in the program.

As the ACA program continues to grow, Goochland High School is excited for the 2019-2020 school year where we will celebrate our largest class yet to graduate with a college degree before



they receive their high school diploma. We are also looking forward to **watching our teachers continue to build strong relationships with their students** and come up with new ways to **enhance student learning** in the classroom.

Fine Arts

One of the goals of the state's Profile of a Virginia Graduate is to devote time and effort during high school to teach more than academic subjects and give students the skills they need after graduation. In the spirit of this profile, Amanda Tolson, Neil Burch, and Cindy Shelton-Eide have undertaken the task of ensuring all students in their advanced Fine Arts classes get the chance to **build a portfolio showcasing their work**. This portfolio, created using WordPress, allows students to show more than just their grades and standardized tests to people in their field. It shows their passion, personality, and creativity alongside writing and 21st century skills.

In our visual arts department, Ms. Tolson's and Ms. Shelton-Eide's classes have focused on thinking and writing about their creative process and reflecting on their final product. They have learned to



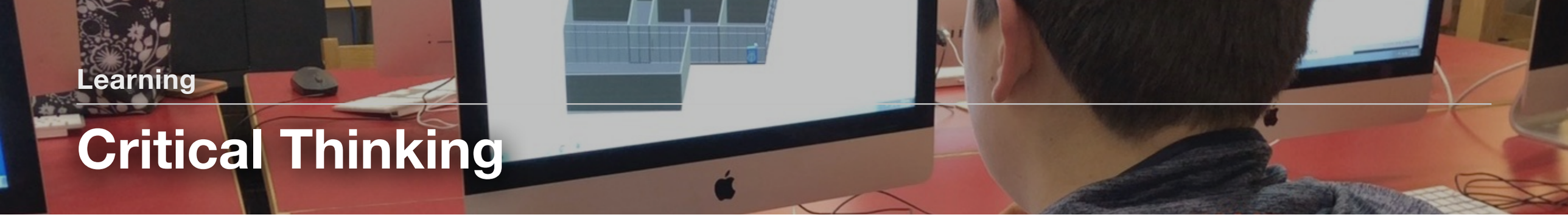
give and receive feedback that is focused and constructive. The students have also had the opportunity to learn how to photograph their creations to showcase them in the best possible way.

In Mr. Burch's theater classes, students have focused on their technique, on **being conscious of what they do to get into character, how the movement of their bodies can enhance the words contained in the lines of the characters they play**. Using video and photography, students can observe their own work, reflect, and grow.

Throughout this process, the teachers and the technology team have taken every opportunity to teach students good **digital citizenship** and how to craft a positive online image while still protecting their privacy. From discussing what kind of information to make public, to helping students decide how to connect the portfolio to their existing social media accounts, the goal is to help students transition to a "real, adult" life online.

In addition, the portfolios students create really open doors. Students use their websites to apply for colleges and scholarships, no longer having to shlep their physical portfolios from place to place. Their writing and images are all on one, professional looking space, representing the best of themselves.





Critical Thinking

Critical Thinking Thrives in Science

Existing as a school within a school, and undefined by physical parameters, the Blue Ridge Virtual Governor's School seeks to prepare highly-motivated students in grades 9-12 with the skills needed to be leaders, collaborators and innovators. **World history and geography, advanced sciences and math, computer programming and engineering, independent studies - these are just some of the many learning opportunities available to this diverse cohort of young adults.** Rigorous pre-AP and AP level content, combined with student-driven project-based learning, form the foundation of this program that is in place for a consortium of seven county high schools across Central Virginia.

By its nature, science lends itself to the need for and development of **critical thinking skills** and this is emphasized across each of the scientific disciplines. Students observe and hypothesize, perform inquiry-based labs, collect their own data, and analyze the results. All BRVGS students are enrolled in pre-AP Biology in grade 9 and then AP Biology and Chemistry in grade 10. Students choose the direction of their scientific pursuits beginning with grade 11. Some take the more traditional path of AP Physics, AP Environmental Science, or Anatomy and Physiology, but some choose a less conventional approach with courses that may include participation in the Virginia Aerospace Science and Technology Scholars housed at NASA Langley or an Intro to Engineering course at the University of Virginia, for example. These options empower students to become independent learners while developing relevant and applicable skills in critical thinking.

As students explore and discover their world through the vast array of courses offered by BRVGS and GHS itself, there are many examples of student learning through the use of critical thinking. Students design and execute their own research involving environmental variables in partnership with the botanists at Virginia Tech. Biotech-in-a-Box provides students with the technology and equipment needed to investigate real-world scenarios in the arena of modern biotechnology. Probe ware enables students to accurately collect their own scientific data, in order to focus more on interpreting and analyzing their

results. Problem-solving as it relates to ethical decision making is highlighted as students compete for grant funding through the "Funding Our Future" project. Ecological studies steered by the Chesapeake Bay Foundation and VCU's Rice Rivers Center foster the students' personal connection to their world and the idea that their choices can make a difference in sustaining our planet. **Each of these experiences is designed to supplement, grow and engage critical thinking skills for our students.**

The **rigor and fortitude** associated with coursework that emphasizes critical thinking skills can be challenging and even uncomfortable for many students. But as Principal Joe Clark declares in Stand By Me, "Discipline is not the enemy of enthusiasm." Critical thinking skills require **discipline of the mind and spirit.** BRVGS at GHS seeks to expand students' critical thinking skills by means of engagement, enthusiasm and academic discipline.



BRVGS students role-play the hardships of a Dust Bowl Family.



Real-World Engagement

Much like committing to college sports, GHS held a CTE "signing day" for students to commit to working with specific companies after graduating.



Goochland High School strives to create real world engagement opportunities across all of its content areas. From skills based learning in CTE classes, to a day devoted to mock job interviews to all seniors, to the student created and managed Fine Arts Festival, to student-led initiatives like the community service oriented Helping Paws Day, GHS strives to bring the outside world into the classroom on a daily basis. This real world engagement helps students to understand how the knowledge they acquire in the classroom can be applied in the world once they graduate.

Career Ready Bulldogs

Our **Career and Technical Education department** emphasizes real-world problems as learning exercises, and all students work through an introductory problem based learning assignment encompassing technology and society. At this point, we start a **digital portfolio** of student work that the students store on the cloud and access the data as needed. **Our "digital footprint" is expanding daily** and has become a working document to show the growth of students learning achievements. As we teach many different content areas, we expand the basic instructional technologies that one would use in a traditional high school setting and apply it to **real-world engagement** for all our students. Ranging from i-movie trailer development for marketing a business or program to mega-machine simulators for our heavy utility construction class, our programs place a priority on using technology in a way that stresses real-world relevancy.

Students are taught using the latest industry tools available. We use the farm bot integrated agriculture growing system to maximize yield, hydroponics for teaching alternative agricultural bio-systems. We utilize computer-aided drafting at the middle school level with sketch up and design commercial buildings using **Revit or Archicad for Mac** throughout high school. Our 3D printers range the broad aspect of the 3D printing word from a model for home/hobby use to the industry rated **Dimension Stratus**. This allows our students to define a problem and develop more accurate solutions through simulation as well as rapid prototyping. **Our students are taught Scrum in the introductory classe**s and we move them to the design process used by engineers to develop solutions. Students are introduced and are provided the opportunity to use laser engravers, CNC routers all done through learning activities driven by the needs and knowledge base of our students. Our **heavy equipment program** utilizes simulators from John Deere as well as Caterpillar Equipment Company to train prior to getting hands-on experience on our owned heavy Equipment. We utilize our industry-based and driven instructional technology through the generosity of our national corporate business partners as well as our local Deere and CAT dealerships. The students in all of our classes have the opportunity to spend an entire year on an internship to show our business partners how we are utilizing their generosity as well as preparing the student to enter the workforce as well trained, motivated individuals.

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Our programs rely on our business partners to tell us what is going on in the industry. One thing our department is not is your father's woodshop class; **we are training students for jobs that do not exist yet.** We search out new ways to introduce students to technology to develop a highly-respected advanced career and technical education department that has a proven track record of student engagement and innovative teaching/learning approach. We are developing career-ready students who are ready to work on day one.

Model Congress

Two specific examples of this real world engagement include our Model Congress session and our senior projects. **Model Congress** takes place during the spring of senior government classes where students represent members of the United States Senate. They form "committees" in order to write bills dealing with current public policy issues, and students are able to choose the topics that their bills will focus on. Crafting these bills takes intensive research into students' chosen topics, critical analysis of these topics and their potential solutions, and an understanding of how the policy solutions students propose could **impact the nation in the future**.

Despite the fact that this is a simulation, **Model Congress** provides students an in-depth look at the policy making process of the United States' federal government. It encourages students to apply the knowledge gained throughout their senior year government class in order to address an issue or problem that they are personally passionate about. Model Congress also encourages critical thinking, as students must determine the potential implications of the policies they craft and vote on. It also encourages a sense of cooperation and community, as students must debate and work together to find legislative solutions to their top policy concerns. This simulation is the culmination of a year spent learning about the process and importance of America's government institutions. And rather than simply testing the knowledge students acquired, Model Congress allows students to demonstrate their learning in a simulation of an actual government process.

Senior Projects

Goochland High School's senior projects are another way that we invite the real world into our students' lives. In another nod to the statewide initiative, *Profile of a Goochland Graduate*, these projects are a way for students to students to develop skills they will need after high school, as well as give back to the community that raised them.

Students have three options for completing their senior project, each of which requires 30 hours of dedicated time from seniors outside of school hours. Seniors can volunteer in their community, complete an internship in a field relevant to their own



For her senior project, Savannah Slater organized the Laura Grace Memorial Music Festival in honor of her late friend and classmate. All proceeds from the event funded five college scholarships for seniors graduating that year. Her project garnered local media attention.

career interests, or complete a more “creative” project. These creative projects can take on a multitude of forms. Examples from the past include the beautification of Goochland schools through murals, community wide fundraisers to benefit scholarship funds, individual families in need, or specific causes students are passionate about, or the creation of longer term initiatives that benefit the Goochland community well past the initial inception of the program by one individual student.

After students complete their hours, they formulate a presentation that they deliver as part of their senior government class. Students have free reign to be as creative as they like in their presentations. Students integrate various forms of technology into these presentations as well, using tools such as Google Slides, Garage Band, and iMovie to create presentations, audio files, and videos that illustrate the work they did. Finally, students complete a digital resume in order to show how the students of Goochland High School are capable of competing in a 21st century world. Students can complete a website that highlights work they did in high school, a LinkedIn page to highlight their resume and network with potential employers, or a video to showcase their personality and skills in a specific area.

Through the work of these senior projects throughout the years, **Goochland seniors have given back thousands of hours to their community.** They have interned and volunteered in their community, gaining skills and career experience along the way.

They have practiced essential communication skills through in-class presentations, as well as the communication they must have with community members in order to secure their volunteer and internship placement. **They have created lasting community impacts** through their creative projects, impacts that live well beyond the senior year of the student behind the project. But most importantly, they gain real world experience in an area of interest to them; experience they can take with them as they graduate from Goochland and join the world beyond.

Transition

Real-world experiences happen on a continuum from virtual to full immersion. The integration of technology into the process of preparing students of all abilities to face their future has expanded both opportunities for students and improvements in supports. We begin to prepare our students to be future-ready through online inventories that allow students to self-assess skills, values, and interests in relation to potential careers. Virtual job shadows allow teachers and students to explore career opportunities in a safe environment and help direct students to school and community opportunities that fit their skills, interests, and preferences. As students begin to identify personal strengths that fit with a career, staff work together to support opportunities for exploration and self-discovery.

School-based, interschool-based, and community-based work experiences allow students to explore opportunities and gain skills. Students participate in a student-run coffee shop for staff and parents. They volunteer in the school library, cafeteria, and completing office-related tasks for teachers. Students travel to other schools in the division to support teachers and students as well as complete job shadows. Students also **volunteer with local community support groups** and have gained value in giving back. Students use digital forms to complete self-reflection on their work while staff compiles observational data. Combining these results allows for detailed support for students as they prepare for life after high school.

One of our final steps in preparing students for their futures is coaching with résumés and interview skills. Students have practice and support throughout the school year to write and talk about their strengths and how they align with the requirements of opportunities.

School and Community Partnerships

The collaboration with Randolph Elementary School (RES), Goochland High School (GHS), and the Chesapeake Bay Foundation (CBF) that was conducted this school year helped create environmentally conscious 4th graders and AP Biology students, as well as help produce leadership, guidance, and teaching skills to the upperclassmen. This project, called



Growing Up Green In Goochland, created a good working relationship and fostered a positive partnership between RES and GHS that will continue for years into the future. This project helped set up a good foundation for many science related collaborations with the elementary schools in the future.

The CBF program created a collaboration not seen before in at the high school and elementary school level. It had AP Biology students serve as volunteers and leaders of their own group of 4th graders, where they not only provided extra insight to the 4th graders about the environmental impact education that the CBF provided but they also learned new ways from CBF on how to

conserve resources, raise awareness, and create sustainable environmental projects for the future.

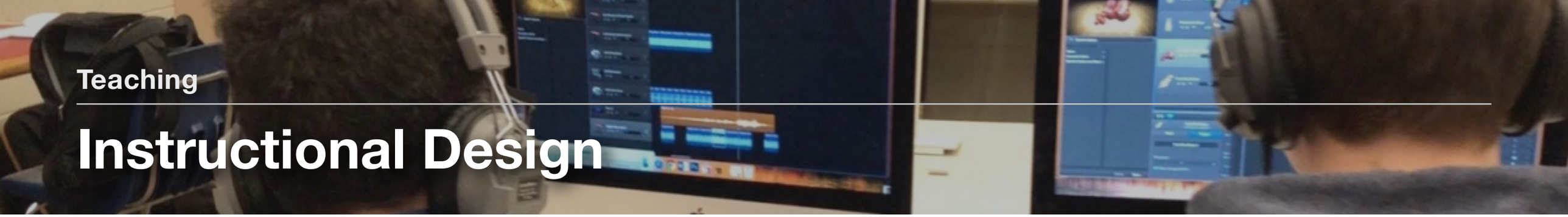
The CBF 2 day program itself was a pilot program for elementary schools, as the CBF usually only runs off-site field trips for middle and high school students. This collaboration helped create an on-site traveling program for schools all over the state of Virginia and beyond.

The purpose of the **Growing Up Green In Goochland** project was to encourage students to not only learn about the environment and how they must sustain it for future generations, but to also teach vertical collaboration among grade levels. Students learned about how their everyday activities impact Goochland's environment and the world around them as well as how to properly preserve the local and global environment for future generations. The project was implemented over the course of the year for RES, and a two day collaboration (once in November and once in May) with GHS and the Chesapeake Bay Foundation. The activities included 2 full days worth of activities with RES, GHS, and the CBF that included a schoolyard report card, nature trail activities, discussions of human made issues, a tie into one aspect of watersheds/ecosystems, and travel stations that included activities on downspouts, erosion issues, and leave no trace principles. In the spring there were stations in the woods to study tree bark patterns, food webs, human impact on predator/prey relationships, and access to pond next door for water testing. Specifically, **students at the AP level collected data on local pond water using vernier probeware and studied indigenous plant and animal species** using microcapture pro microscopes prior to the collaboration with RES. They demonstrated their knowledge, data, and probeware skills to the 4th graders during their collaboration and helped explain to students how their habits impact the local environment.



Chapter 3

Teaching



Teaching

Instructional Design

World Languages through Project Based Learning

Teachers must be facilitators of experiences, rather than just givers of information. The student experience must be rich, diverse, thorough. Communication does not happen when reviewing lists, while filling in charts, or through repeating memorized lines. Student engagement happens when we stimulate curiosity, when we demonstrate relevance, when we empower individual identities, and when we provide meaningful opportunities. These philosophies have formed the cornerstone of instruction in the World Languages Department at Goochland High School for many years. In conjunction with a supportive administration, and through the use of multiple technologies, Goochland World Language teachers continue to learn, tweak, consult, reflect, and blend to create the perfect environments, activities, and plans to foster and improve communication, as well as to inspire and prepare globally aware, empathetic, creative, confident humans.

From Spanish II classes that practice mindfulness, invent student-created characters, and almost accidentally teach



creative writing through completely student-centered, collaborative shouting matches, to beginning French classes that highlight each student's individual personality traits and how they'll enrich the learning environment, to AP Spanish classes where students create entirely new countries and systems of government, emphasis is on students. **When students are empowered to share their own perspectives, question each other, the teacher, and themselves, and make and examine the effects of mistakes without the stigma of perceived failure, meaningful, memorable learning happens.**



This learning would not be possible without technology. Spanish I and III students learn about the *Orquesta Reciclada,* the Recycled Orchestra of Cateura in Paraguay and are able to immerse themselves in what it must be like to live in a huge landfill, build instruments out of trash, and experience the fulfillment of practice and travel, because streaming video, FaceTime, image searching, Twitter, Instagram, SnapChat, and iTunes bring the Paraguayan students into our classrooms. When Goochland students then have their own chances to travel the school and rescue trashed items that could be turned into musical instruments, they draw on shared perspectives they've heard directly from the music teacher and his crew, and are able to share their own struggles and innovations with them through social media afterward.

When students learn from artist Álvaro Soler by using his song "Sofía" in their investigations, they are able to Tweet him questions and follow his comments and photos on Instagram. When students interview Hispanic and Spanish-speaking community members for the Humanos de Goochland project, they are able to record interviews and create websites to share who they met. As French and Spanish teachers look for the best ways to make language accessible to students and facilitate the richest experiences, they connect through social media, websites, blogs, and in-person conferences with masters

Using iMovie and green screen technology to create Spanish music videos

of **Comprehensible Input Theory and gold-standard Project-based Learning** to share materials and techniques. When upper-level students have the chance to learn about a blind Spaniard studying abroad for the first time, they eventually must lose their own senses of sight through a communication activity. The hands-on experience is first made real to them by witnessing the Spaniard's own experience through his video logs and the human interest news stories about him. Then the connection is forged by reaching out and sharing. All of these lessons, teaching techniques, and the root of experiential learning are possible through authentic materials, made accessible through technology.

These rich, real interactions inside and outside of the classroom are built around authentic materials curated by teachers and students- students build interpretive communication skills (reading comprehension and aural comprehension) through reports, articles, video interviews,

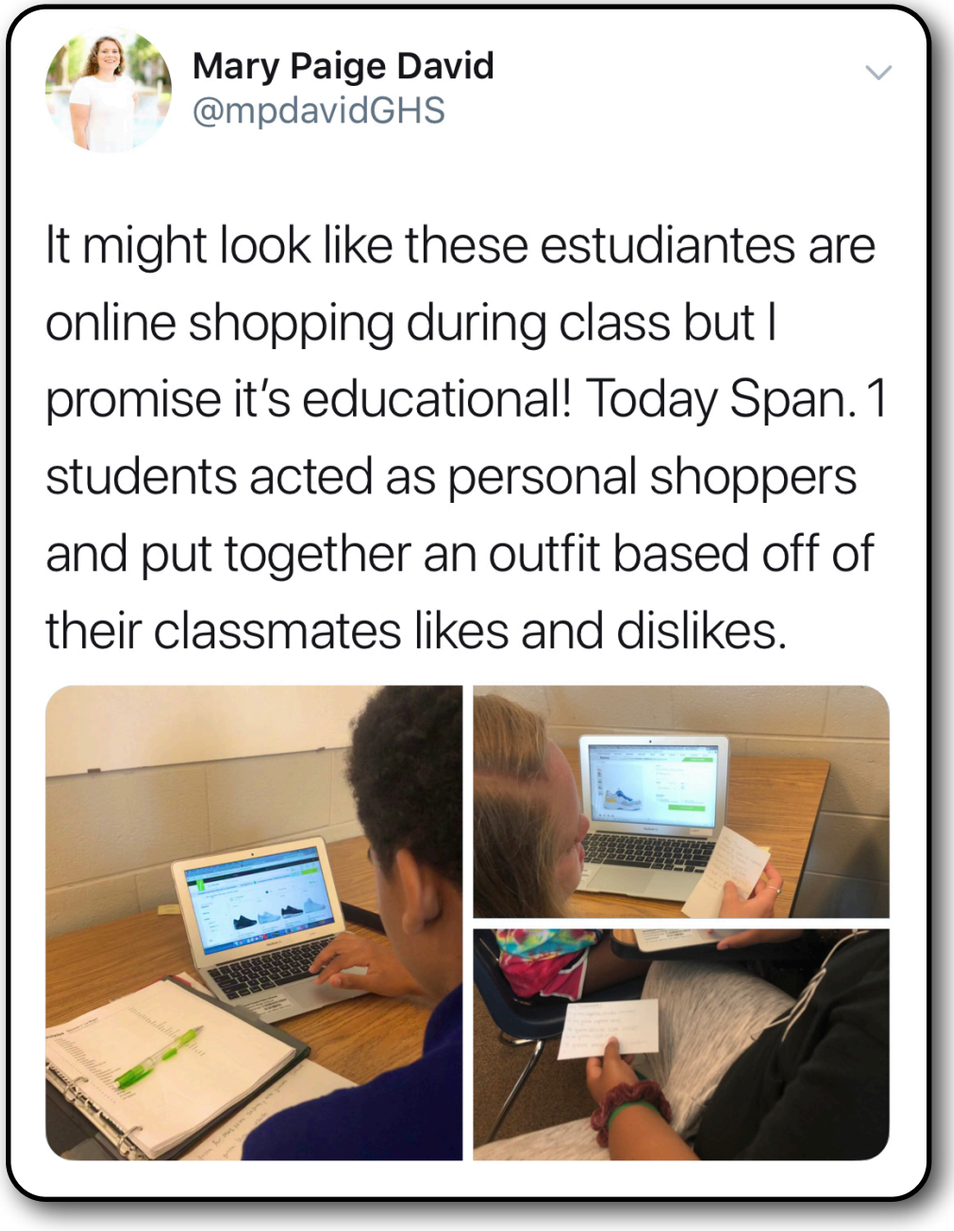
"I find myself anxiously awaiting midterms for the courses I teach at Goochland High School to begin - which isn't something I could have said when I first started teaching. This is because at Goochland, fewer and fewer assessments end with blank computer screen filled classrooms or the sound of pencils dropping on desks as time expires for a test. Instead, assessments end with questions, compliments, suggestions, and discussions. Creativity and problem solving are evident during student presentations, and so too are the objectives of Profile of Virginia Graduate and Profile of a Goochland Graduate.

I acknowledge I was nervous about a new approach to assessment, but I am very fortunate to work for a school system that encourages calculated risk and provides resources and tremendous support to reach our goal of deeper learning. In 2013, our district recognized the need for balanced assessment and our approach toward assessment and instruction began to shift. We were encouraged to create and inspire through engaging and rigorous instruction. That same year, our school board approved our district's strategic plan for 2014-2020. Our district's Core Values, Mission, and Vision statements were evident throughout the strategic plan, and so was the commitment to balanced assessment and deeper learning.

With all of these guidelines and criteria in mind, I was able to structure a Sports, Entertainment, and Recreational Marketing (SERM) class and an Entrepreneurship Education (EE) class to maximize students' academic potential through meaningful and relevant experiences both in and out of the classroom.

As a group, we embarked on two different ten-week projects, which ultimately served as the midterm exams for each class. I consider myself fortunate to be in a school district that allows teachers to choose to administer a traditional final exam (i.e.-multiple-choice), a performance-based assessment or a hybrid of both. This flexibility is something that makes GHS unique." — Erin Yearout-Patton, GHS Teacher

reviews, advertisements, and blogs. They build presentational speaking and writing skills through structured debate, short persuasive commentary on blogs and articles, their own articles on special interest topics, commercials for products they create, trailers for the next Spanish or French prime time television series, newscasts from their own small-group-created web channels, persuasive essays submitted for publication on relevant websites, critiques and reviews of restaurants, movies, and books, as well as through spoken word presentations about their own creations, researched views they value, and more. They build interpersonal speaking and writing skills each day through constant pair and small group interactions in class, through actual conversations with each other and with native or heritage speakers of the language, and through Messenger chats, text messages, and emails.



These authentic materials are not textbooks with stereotyped "cultural" activities and "conversations" that are actually pre-mapped scripts. They are created for those already communicating in the language, and contain actual human perspectives and original thoughts. **Through the use of the technologies made available to us in Goochland, we can build curricula around this authenticity, thereby increasing student voice, choice, and buy-in, relevance, and the building of applicable authentic skills.** School-furnished student and teacher MacBook Air laptops loaded with thousands of relevant apps and programs form the base, the flexible use of cell phones as learning tools permitted by teachers adds depth and personalization, and AppleTV instant projection of everything students and teachers create and curate brings all stages of the learning and investigative processes together.

The **crowning glory that makes it all truly work is a school system full of teachers who are unafraid, and supportive administrators who don't even blink when they see students wandering the halls, blindfolded, in pairs, during class time, who jump right in when it's time to dig through the trash bins behind the cafeteria, and who ask to moderate debates between conflicting governments,** knowing they will be 100% not in English. Along with our many technological tools, admin faith that teachers are purposefully using the world around them to create deeper learning, and thus authentic and meaningful communication, is what makes the richest experiential learning possible each day.

Whether or not the language is truly something a student wishes to pursue, it will be there, having been cemented in memorable, authentic ways, to be called into service as needed. Meanwhile, the processes of learning through these hands-on practices have built and fostered skills that student will use each day in multiple contexts while making decisions, solving problems,

"...bringing a curious and empathetic perspective to every daily endeavor."

communicating with a variety of groups and individuals, and in bringing a curious and empathetic perspective to every daily endeavor.

Cross-Curricular and Collaborative Learning

The **Humanities program** at GHS began in the fall of 2016 as an effort to provide cross curricular instruction along with extended opportunities for collaborative learning. These courses offer students the chance to take blended social studies and English courses that focus on **group work and project-based learning**.

Humanities I is a combination Honors World History I and Honors English 9 course. Students learn about world cultures from ancient times to 1500 CE in combination with literature from the time period. Students explore themes and ideas about the interrelationships between history, geography, economics, civics, literature, writing, and communication. Humanities II is the second level in the program where students take a blended course of AP Human Geography and Honors English 10. Students learn about the systematic study of patterns and processes that have shaped human understanding, use, and alteration of Earth's surface while also exploring both print and digital texts from multiple perspectives and cultures. In both courses, there is an emphasis on developing and honing students' writing skills to write in multiple contexts and formats.

Hands-on learning is a key component to the Humanities courses. Students experience real-world activities through field trips and other activities outside of the traditional classroom. From cupcake decorating contests that express themes in A Tale of Two Cities to a paleolithic simulation outside in the surrounding woods in which students work within teams to hunt for food and survive natural disasters, the Humanities program allows students to step outside the textbook and get their hands dirty, both literally and metaphorically. Trips to the United States Holocaust Memorial Museum in Washington DC, visits to houses of worship for all major religions in the Richmond area, and Shakespearean workshops at Agecroft Hall are just a few of the adventures that Humanities students have experienced. These hands-on, deeper-learning activities enrich the experience for students and allow them depth in their learning that they might not experience in a traditional classroom.

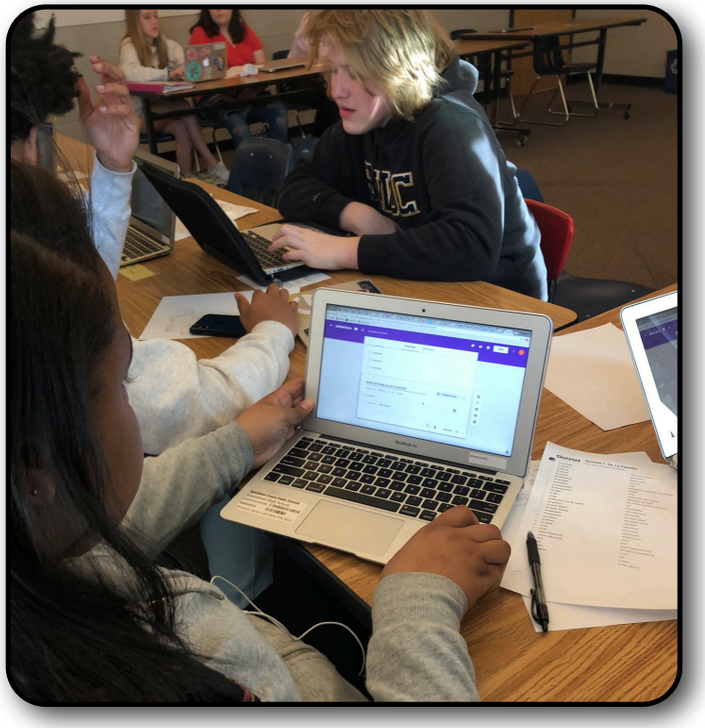


Team building and group work help our students practice the skills highlighted in our *Profile of a Goochland Graduate*. With emphasis on collaborative projects over traditional assessments, the Humanities program helps students gain life skills necessary for the 21st century workforce. In the fall of 2018, the Humanities II students began their school year at Challenge Discovery at the University of Richmond, developing trust and learning about each other's communication styles. In 2019, the Humanities I students began their year in a similar way with a visit to Peak Experiences. Projects, performance based assessments, project based learning, and SCRUM rule the day in the Humanities program. Students are challenged to think through the collaborative process and reflect on their own roles in the group dynamic.

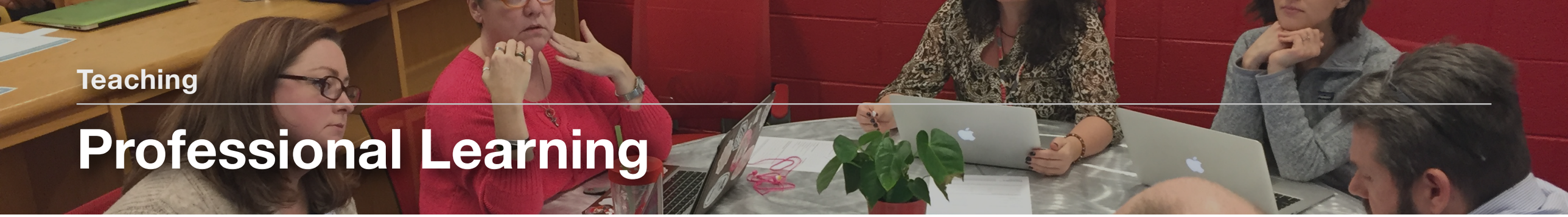
Meant to allow access to rigorous curriculum for all students, the Humanities program requires students to practice advanced thinking and writing skills. This exposure in the first two years of high school helps prepare our students for the rigors of our Advanced College Academy and AP Programs in their junior and senior years. While students get to know each other as a cohort, they learn the challenges of a difficult course load and how to be resilient in the face of challenges. Learning how to balance the

demands of both courses in one, students push themselves not only to juggle both curricula, but also to make cross-curricular connections between social studies and language arts.

And finally, technology is the glue that brings these courses together. Regular use of MacBook Air devices, cell phone technology, and software programs allow students to produce work appropriate to its 21st century audience. From Trello to Schoology to the Google suite of programs, students in the Humanities courses are tech savvy. Students used the Google suite to poll their peers and produce demographic maps in order to see connections and correlations between data. During the Scrum process, students use Trello to communicate, organize, and plan their work. Instructors use teaching tools like NearPod, Quizlet, EduBlog, and the Smithsonian Learning Lab, among others, to engage students in meaningful research and review. Through the sustained use of cutting-edge technology, **Humanities students have a head's start to being life-long learners.**







Teaching

Professional Learning

Teachers at Goochland High School have significant opportunities for professional growth. One of the ways teachers connect with their peers near and far is through the use of **Twitter.** While many teachers use this social media tool to **broadcast the learning** in their classrooms to families and simultaneously to a more **global community**, the tool can also be used to keep abreast of new ideas related to teaching and learning. Whether it's through a Twitter chat, through connecting with state and national thought leaders, or simply as a way to keep up with new tech tips and tricks, the school board's policy in Goochland County **encourages the use of social media for teacher professional development**.



Over the past two years, the department led by John Hendron, division Director of Innovation and Strategy, has produced a monthly newsletter for teachers that provides professional support around technology use in the classroom. Articles written by the technology coach **highlight innovative uses of technology** across all five schools, but also introduce new services, resources, and include instructional insight with software. In addition, the newsletter communicates the dates and descriptions for after school and virtual training opportunities.

Informal and just-in-time training and support is provided through our instructional technology and instructional coaching positions for teachers. Seven coaches are employed throughout

the school division and provide in-classroom support, co-teaching services, and collaborative planning opportunities for teachers.

Principal Collier has worked hard to use faculty meetings strategically to provide professional development for the teachers at GHS. Using the **communication power of the Schoology LMS**, faculty meetings no longer have to be about information dissemination and announcements. Instead, a variety of timely topics are addressed through relevant androgogic methodologies.

Teachers can apply to attend regional, state, and national conferences. Our division's professional development budget and local school budget allows for teacher participation in conferences and workshops as active participants and as presenters. Examples include the Virginia Society for Technology in Education, GRAETC EdTechRVA.

Summer is also a time for professional learning in Goochland. The technology department offers paid training sessions each summer to support the division initiative around deeper learning with 1:1 devices. Recent sessions have focused on **coding across the curriculum and approaching engagement for learning by using the Four Shifts Protocol**. The start of each summer is also time for our incredible Innovation Symposium, which offers fun-infused learning options on the last day of the school year, fueled by the experiences of grant-winning teachers who participate in the Goochland Education Foundation (GEF) **Strategic Innovation Grant program**. The GEF awards teacher grants to support deeper learning PBL experiences for students. The symposium is designed to allow these teachers to share the lessons learned around designing and implementing projects. In 2018, the second day of the symposium included choices of a historical Segway tour in downtown Richmond, Virginia, or whitewater rafting on the James River. For the 2019 symposium, participants traveled to Busch Gardens, Williamsburg, for team building with principals and our superintendent, Jeremy Raley.





Teachers teaching teachers about coding with Spheros.

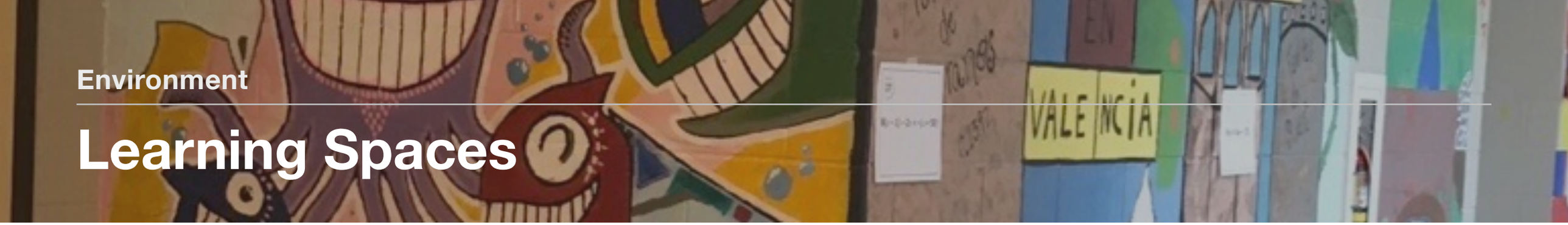
Online Learning for Mindfulness

Leadership at Goochland High School **values the mental and emotional well-being of its faculty and students**. With this in mind, Goochland County Public Schools paid for three teachers to complete a **Mindful Educator Essentials** online course through Mindful Schools. In this six week course, which primarily comprised a multimedia-based discussion forum, teachers learned how to **embody mindfulness in the classroom** and the basics of how to teach the Mindful Schools curriculum.

Based on his success in implementing mindfulness in his classroom, and interest in learning more, Josh Rooke enrolled in a 300 hour, year-long certification program through Mindful Schools. This course, which he primarily completed online, comprised a number of digital resources, some of which he would like to employ with his students. One of the primary course platforms was Zoom video conferencing, which allows participants to engage in face-to-face conversations with the instructors and with other course participants. This platform also allows one to record the lessons and could be used in a variety of ways within the classroom context. For example, Mr. Rooke, who is a Spanish teacher, can envision using Zoom to provide AP study sessions outside of the normal school day or **leading mindfulness sessions for students who are interested in practicing at home.**

Chapter 4

Environment



Learning Spaces

One of the awesome things about Goochland High School is the **diversity of spaces** we have for learning. Goochland Tech, roughly a mile away, adjacent to Goochland Elementary School, features lab spaces for the Goochland Flex program (alternative education with Edgenuity), our heavy equipment program, nursing, woodworking and construction, and our culinary program. Students ride a bus or on some days walk over to this facility. Behind our main building, students can participate in the Marine JRTOC program in a separate building adjacent to the football field. Across all these spaces, students have access to wifi for laptops and personal cell phones.

Within Goochland High School, the focus within classrooms has been a move toward more **flexibility**. Through school-based and division-based grants, teachers have slowly been replacing traditional furniture in rooms to **support non-traditional setups**. Some of these have included furniture that can be moved to one side of the room, or comfortable sofas, or desks at multiple heights to support a fishbowl configuration. Teachers have been given leeway with painting classrooms. Most impressive to visitors have been the mural work within classrooms and in hallways.

In one project, Ms. Olivia Exum was given permission for students to **decorate the halls** with paint and 3D objects to represent the regions of Spain. In the past, she used to use consumable materials to have students transform her classroom, but once the project left the classroom and moved into the hallways, other students could benefit from the experience. Each year, now, the hallway mural project is expanded upon and contributes toward making that portion of our upstairs a **special journey.**

Another unique space at GHS is the CTE lab in room 143. This space debuted in 2001 as a very large computer lab with PowerMac towers and large CRT monitors. Today, it serves several of our CTE programs around engineering and CAD/architectural drawing in addition to our humanities courses. This space is **augmented by several projection systems, a high-powered laser cutter, multiple 3D printers, and poster printers.**

The Runser Video Studio at GHS houses are **video production classes and video editing suite**. Beginning in 2019-20 school year, students now use FinalCut Pro on their MacBook Air computers tethered to larger monitors. Mr. Rose also offers Mechatronics equipment for his engineering students and also uses vinyl printers and cutters.

Finally, the **Learning Commons is a dynamic space for multiple flavors of learning**. Enhanced with a donation from the Presley family, this traditional library space was recently **re-conceptualized with student input**, working with our architect's interior design team. The space now offers multiple learning stations, TV monitors and Apple TVs, a 3D printer, a Glowforge laser cutter, a suite of coffee and vending machines, and of course, the school's collection of fiction and non-fiction titles.




WELCOME
TO
GHS
EXIT



Infrastructure Design

The 1:1 program in Goochland is supported by a technology team that includes **expertise in assessment, device deployment, instruction, and professional development**. Members of the team, led by two central office directors, are interacting daily with Goochland's stakeholders to support deeper learning, engagement with learning, and excellence in teaching.

Behind the scenes are a number of systems that support the learning goals for students. **Critical to these roles is a mobile device management system**. Goochland uses JamfPro to manage its entire fleet of Macintosh and iOS devices.

Likewise **critical toward our mission of deep collaboration is the use of the cloud**. Goochland utilizes solutions from Google and SysCloud to support e-mail, messaging, and backup services. Students receive a Google account in the third grade and access to e-mail in high school.

Parents connect with their student's learning with accounts on Seesaw and Schoology.

Network

Our collaboration with Goochland County brings high bandwidth access to our school campuses. A significant project in SY 2018-19 brought a new fiber connection funded with federal grants and county funds lit up our last school, Byrd Elementary. We have deployed wireless networks in our schools since 2001 and utilize Aerohive wireless solutions and Cisco switches. In addition to student devices, our network supports security cameras, electronic door locks, and VOIP telephony. **Our filtering solution provides filtered access to the Internet both on and off campus for students.**

Anytime Access

We are currently in our fifth year of implementing Kajeet SmartSpot devices to provide wireless access for families who are burdened with acquiring broadband access in our rural community. The Goochland Education Foundation helps us provide this service to approximately 100 families.

Mobile Computing

Since the 2018-19 school year, Goochland's 1:1 program has covered grades K-12. Elementary students use iPad devices, and take these home beginning in the third grade. Middle schoolers use iPad devices, as well. **Our high school students use MacBook Air laptops.**

Students at all schools have access to accessories that extend the utility of their devices. These include 3D printers, robotic devices, and laser cutters.

Resources and Subscriptions

Goochland also provides digital resources to provide needed content support. Some examples of platforms we have adopted include ST Math from Mind Research Institute, Rosen Lightsail, Discovery Education's video library, and Explore Learning Gizmos.

Deployment Procedures

Each year a number of students get their 1:1 devices on the first day of school. We have school board policies that support computer use guidelines, electronic device loan agreements, and we offer our own insurance program to **help families protect the investment in a personal device**. Through a combination of PowerSchool, Clever, Apple School Manager, JAMF Pro, and



Google App Suite for Education, **we coordinate a single sign on for students** using their Google ID for many online services and subscriptions.

Apps may be requested by teachers and these requests result in app purchases and pushes, reviewed by our technology coaches every week.

Professional Development

Goochland uses a **multi-tiered approach toward providing professional development** through blog posts, face-to-face workshops, summer extended workshops and a monthly newsletter that highlights exceptional projects and technology implementation by our teachers.

Personnel

- John Hendron, Ed.D., ADE; Director of Innovation & Strategy (Instructional Technology)
- Krystle Demas, Instructional Technology Coach, RES, GES
- Morgan McMullin, Instructional Technology Coach, BES
- Andrea Burton, Instructional Technology Coach, GMS
- Catherine Richards, Instructional Technology Coach, GHS
- Peter Martin, Director of Technology
- Mike Arrighi, hardware support
- Ryan Jones, hardware and software support
- Henry Pace, hardware support
- Ginni Nichols, technician and logistics support
- Jennifer Bocrie, PowerSchool and Database Management
- Sean Campbell, PowerSchool and Data Analysis
- Stacey Rainbolt, Ed.D., Testing Coordinator
- Ellie Kurth, Library Media Specialist



High School students receive their laptops during the first week of the 2019-2020 school year.

Chapter 5

Results



Results

Using and Collecting Data

Research Practices

With data, we can begin the process of answering the “why” questions related to instructional methodologies, student growth or regression, student satisfaction with their school experience, and the impact relationships have on overall student achievement. And today at Goochland High School, so much of this data is created digitally, through online surveys for parents and students, test scores, performance assessments, and discipline reports. **One of the results of putting technology into the hands of every student is the ease by which these data can be created and collected**.

Student Satisfaction and Engagement

One of the data sources that has been targeted at Goochland High School is our annual climate survey distributed to students and staff. This survey is a critical element in helping us measure the **quality of experience students and staff have** at Goochland High School.

Engagement	2013	2014	2015	2016	2017	2018
Engaged (%)	37	38	25	30	27	38
Not Engaged (%)	31	32	36	34	36	33
Actively Disengaged (%)	32	30	39	35	37	29
Engagement Grandmean (x/5)	3.67	3.72	3.49	3.56	3.51	3.71
My teachers make me feel my schoolwork is important (x/5)	3.68	3.71	3.54	3.67	3.56	3.81
I have fun at school (x/5)	-	-	2.95	3.03	2.99	3.18
In the last 7 days, someone has told me I have done good work (x/5)	3.08	3.16	3.56	3.46	3.26	3.62
In the last 7 days, I have learned something interesting (x/5)	-	-	3.52	3.56	3.29	3.7
The adults at my school care about me (x/5)	-	-	3.45	3.41	3.47	3.63
I have at least 1 teacher that makes me feel excited about the future (x/5)	4.03	4.01	3.89	3.91	3.81	3.93

Student surveys generally help paint the picture that many students like Goochland High School, the quality of its teachers, and availability of technology. Using the Gallup Student Engagement, Health, and Wellbeing survey, distributed nationally, Goochland High School's metrics are below the national average for engagement; however, **we have shown a significant increase in engagement over the past six years**.

While this data only captures attitudes at one point in time, clearly we are concerned about student attitudes and will continue to use this measure as a way to gauge the work we do to support student engagement and student climate at GHS.

Pre-1:1 Study by Virginia Commonwealth University

Ahead of the 1:1 rollout at Goochland High School, we contracted with Virginia Commonwealth University's school of education to host a study of the faculty at Goochland High School and **how prepared they were for the 1:1 rollout**. Two doctoral candidates conducted the research study and led to their successful dissertation in practice. The team's research questions were:

(1) What does teaching and learning look like from the perspective of high school teachers at Goochland High School?

(2) In preparation of a 1:1 computer initiative, what is the current range of practices that creates an environment that supports deeper learning in the classrooms at Goochland High School?

(3) What kinds of support do teachers articulate for changing learning to be more personalized, problem-based, inquiry-driven and prepared for a 1:1 laptop initiative?

Researchers used survey instruments, classroom observations, document review, and interviews to **gain insight into the prevailing instructional methodologies** used by teachers and

Student Watchlists

At Goochland High School, members of school counseling, administration, and teachers collate watchlists for students in each grade level who are at-risk of not meeting graduation requirements. We track their progress on a monthly basis and create tiered-support systems to meet individual student needs. Teachers are able to provide targeted teaching and remediation.

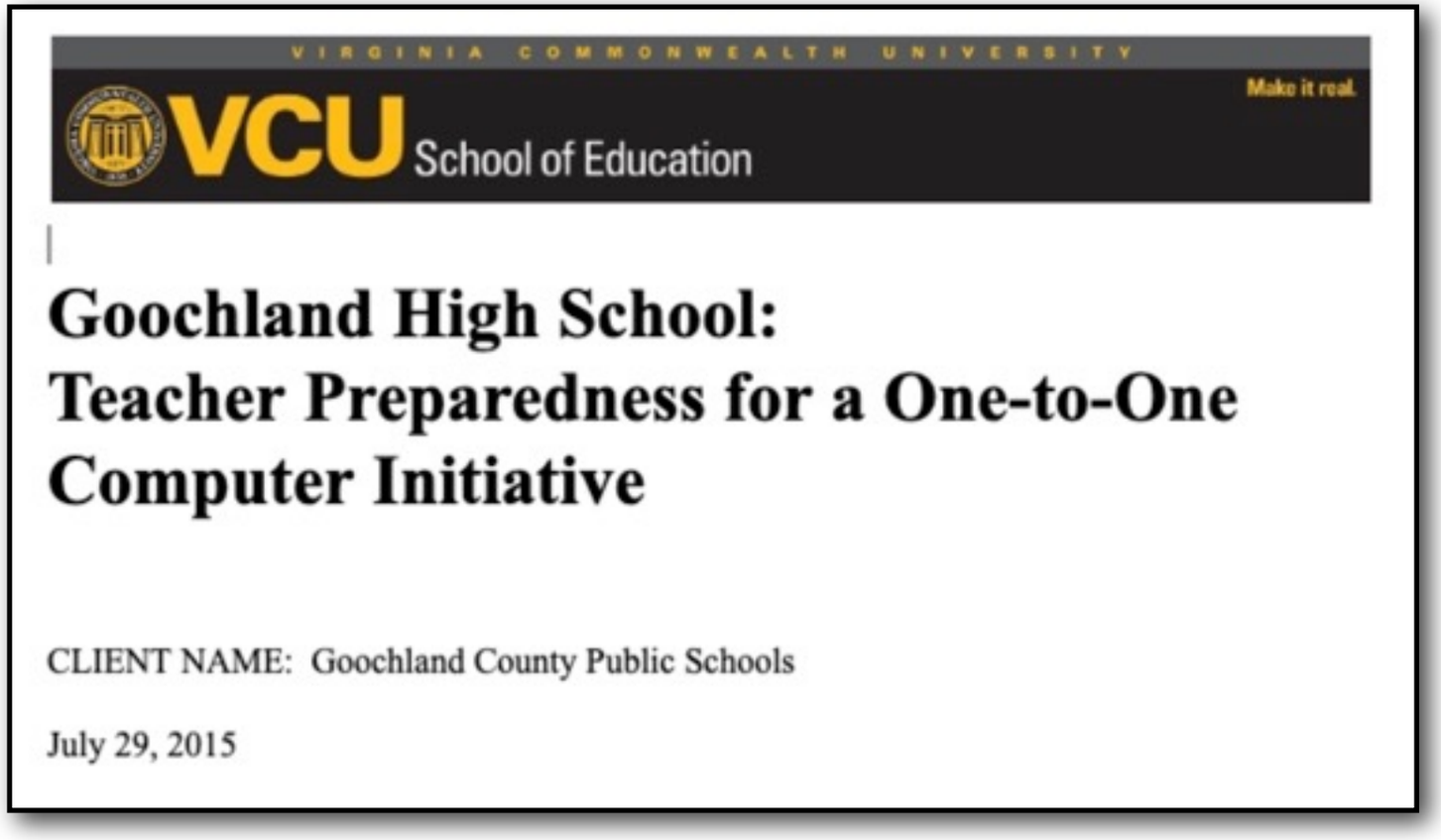
Opposite: Ashton Guza, school counselor, and Principal Collier review a recent update to the student watchlist to plan for intervention support.


BULLDOGS
University of Richmond

the synergy these methodologies had with deeper learning enhanced with 1:1 technology.

The results of this study were congruent with a tool provided to Goochland High School by Apple. The findings were that the GHS faculty felt very comfortable using MacBook laptops and using productivity software. Many had a **favorable disposition** toward students getting laptops full time. Growth opportunities were available across teaching methods that support deeper learning, including student collaboration and real-world applications. Student creation of media was high in some departments.

Since the presentation of the study, presented in 2016, Dr. Hendron has worked with school administrators on **how to look for and document deeper learning inside classrooms**. Using a protocol developed for a research study conducted at Goochland Middle School, classroom observations were conducted by Dr. Hendron and Dr. Collier. The purpose behind measuring “depth” of a lesson using the Goochland protocol was **to acclimate everyone to identifying the triggers under control of the classroom teacher to support and develop deeper learning for students**.


VIRGINIA COMMONWEALTH UNIVERSITY

VCU School of Education

Make it real.

Goochland High School:
Teacher Preparedness for a One-to-One Computer Initiative

CLIENT NAME: Goochland County Public Schools

July 29, 2015

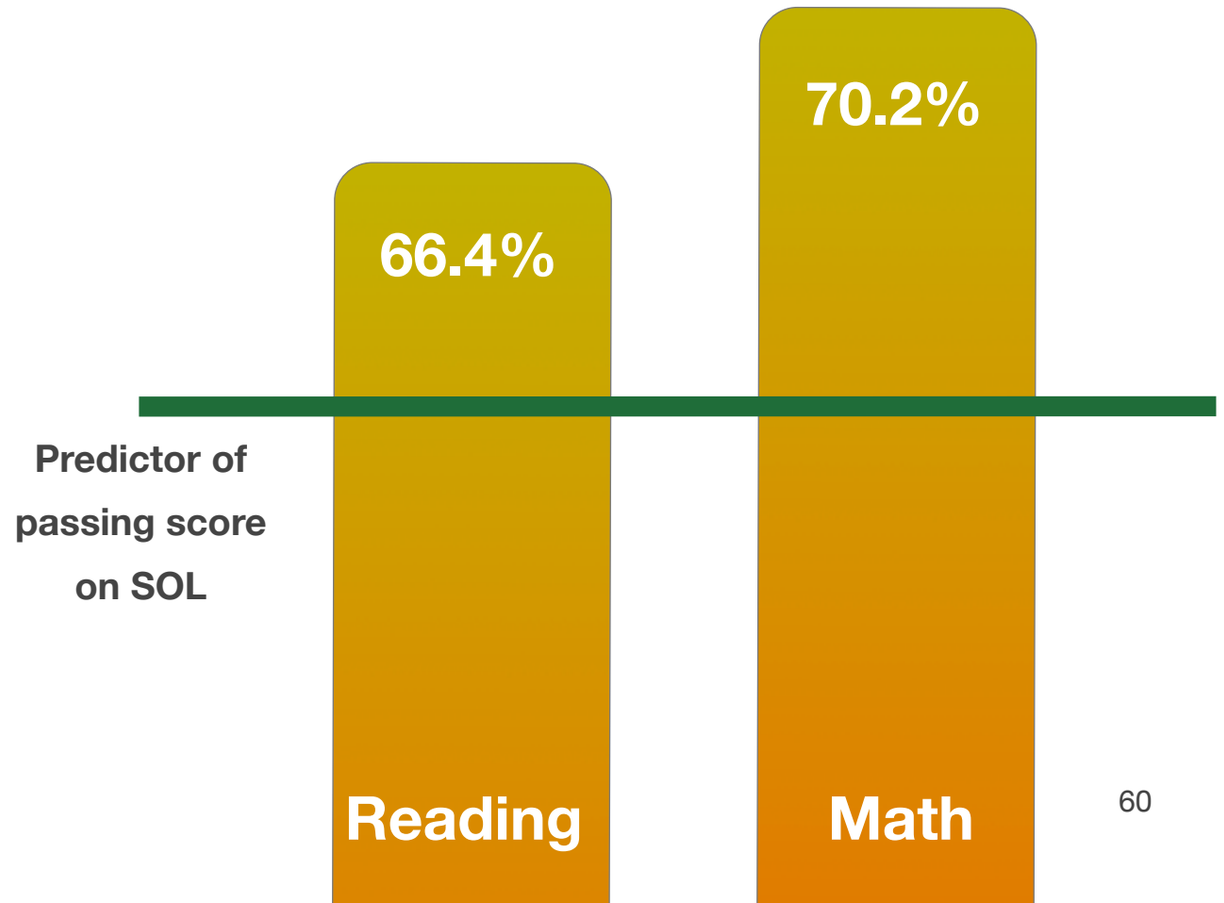
This protocol will be used to conduct an **action research project** beginning in the winter of 2019 at Goochland High School with a targeted cohort of teachers and the technology coach. This study will replicate the studies completed at Goochland Middle School and those being simultaneously run across our three elementary schools.

In the end, we believe strongly in the power of a methodical, documented research approach toward increasing the impact technology plays across all facets of teaching and learning.

Student Progress

Goochland uses the NWEA MAP® assessments to measure student growth in addition to using customized SGA tests in some content areas. With a focus on student growth over achievement, we aim to ensure that every student experiences at least a year's worth of growth each school year. MAP assessments are administered three times a year and results are discussed at the executive and department level (with teachers) at GHS. Instructional coaches are available to identify additional instructional strategies for students who are not meeting their predicted growth goals.

Goochland High School had impressive growth results in reading and math, **our two MAP-assessed subjects over the 2018-19 school year. 70.24% of students met or exceeded their growth projection in mathematics, and 66.37% of students met or exceeded their growth projection in reading**. We have found that growth rates in excess of 50% are strong predictors for passing scores on the Virginia Standards of Learning tests.



Attendance

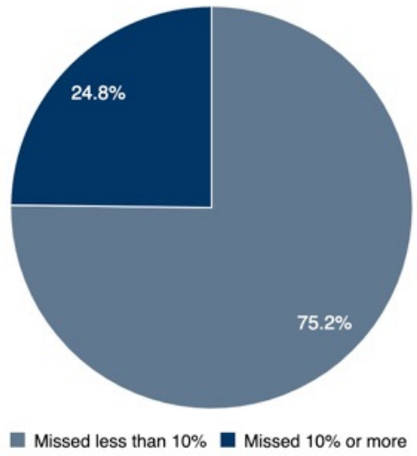
At the beginning of the 2018-19 school year, one of our goals was to decrease the absenteeism rate at Goochland High School. During the 2017-18 school year, 25% of students missed at least 18 instructional days which, according to the Virginia Department of Education, labels them chronic absentees. In order to address the growing concern, Goochland High School staff worked with students to develop a plan of action and decrease the chronic absenteeism rate.

At Goochland High School, we track and monitor student attendance weekly. Administrators use this data to implement designated processes at specific absence counts. Each month, administrators, counselors, and the attendance secretary meet to discuss students with multiple absences to help provide insight as to these students' barriers to attendance. In September, to celebrate Attendance Awareness Month, we question students during lunches as to their opinion on the importance of regular school attendance, providing us with another perspective. With this insight, we are then able to tailor interventions specific to each student's needs, whether they be medical, social, academic, or due to home environments. For example, a student who is experiencing anxiety and nerves related to social issues at school may be motivated to stay home. Knowing this, we can refer this student to a counselor for support and possibly work with administration to resolve any peer or teacher conflicts. If a family is going through a challenging time, we may be able to recommend community resources that can provide relief.

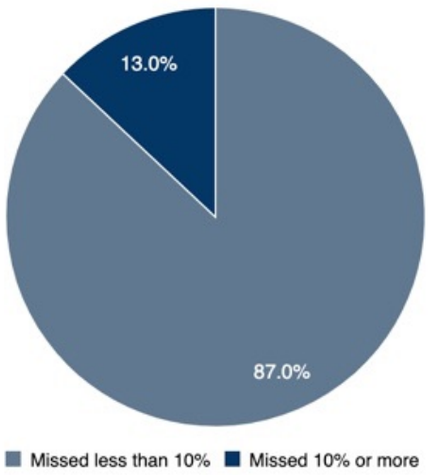
At the conclusion of the 2018-19 school year, GHS successfully met its goal and reduced the chronic absenteeism rate to 13%. While there is still work to be done and improvements to be made, we are proud of our progress and will continue to refine our practices to better serve our students.

Absenteeism

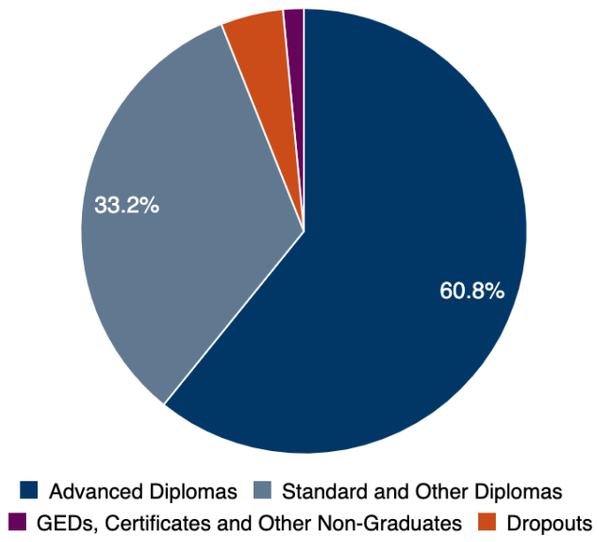
2017-2018



2018-2019



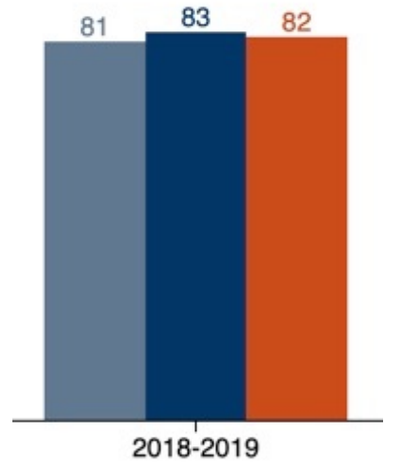
College and Career Readiness

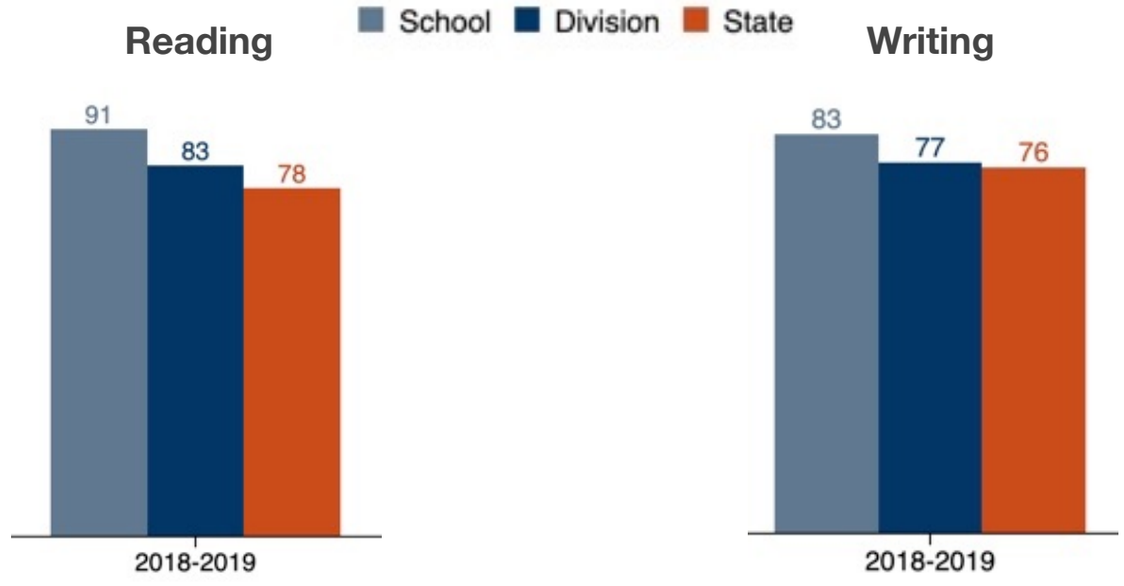


Students graduating from Goochland High School are ready to enroll, enlist, or be employed as contributing citizens of their communities.

While we value growth over achievement, Goochland High School students and staff understand the need to perform on state standardized tests. Over the last several years, **our student pass rates have met or exceeded the division and state averages in reading, writing, and mathematics**. It is our belief that if we ensure that all of our students meet or exceed their expected growth goal over the course of the school year, our students will perform well on end of course state achievement tests.

Math





Chapter 6

Credits

Overview

Welcome Dr. John Hendron

Vision

Shared Leadership Dr. Chris Collier, Dr. John Hendron, & Ms. Lindsey Dewey

Goals and Sustainability Dr. John Hendron & Ms. Catherine Richards

Learning

Teamwork

- **Adventure Games** Mr. Wesley Farkas

Communication and Creation

- **Exploring World Languages** Ms. Mary Paige David
- **Robotics** Ms. Stephanie DeLoach

Personalization of Learning

- **College and Career Readiness** Dr. Beth Fowler
- **Blended Learning Opportunities** Ms. Liz Kuhns
- **Advance College Academy** Ms. Taylor Reahard
- **Fine Arts** Ms. Amanda Tolson

Critical Thinking

- **Critical Thinking Thrives in Science** Ms. Elizabeth Alford

Real World Engagement

- **Career Ready Bulldogs** Mr. Tim Greenway
- **Model Congress** Ms. Alexa Moser
- **Senior Projects** Ms. Alexa Moser
- **Transition** Ms. Bridget Parker
- **School and Community Partnerships** Ms. Ashley Borgie

Teaching

Instructional Design

- **World Languages Through Project Based Learning** Ms. Olivia Exum
- **Cross-Curricular and Collaborative Learning** Ms. Anne Marie Hudak & AJ Nash

Professional Learning Dr. John Hendron

- **Online Learning for Mindfulness** Mr. Joshua Rooke

Environment

Learning Spaces Dr. John Hendron

Infrastructure Design Dr. John Hendron

Results

Using and Collecting Data Dr. Chris Collier & Dr. John Hendron

- **Student Watchlists** Ms. Rachel Wilborn
- **Attendance** Ms. Ashton Guza

Edits and Book Layout

Book Design and Layout Ms. Catherine Richards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