

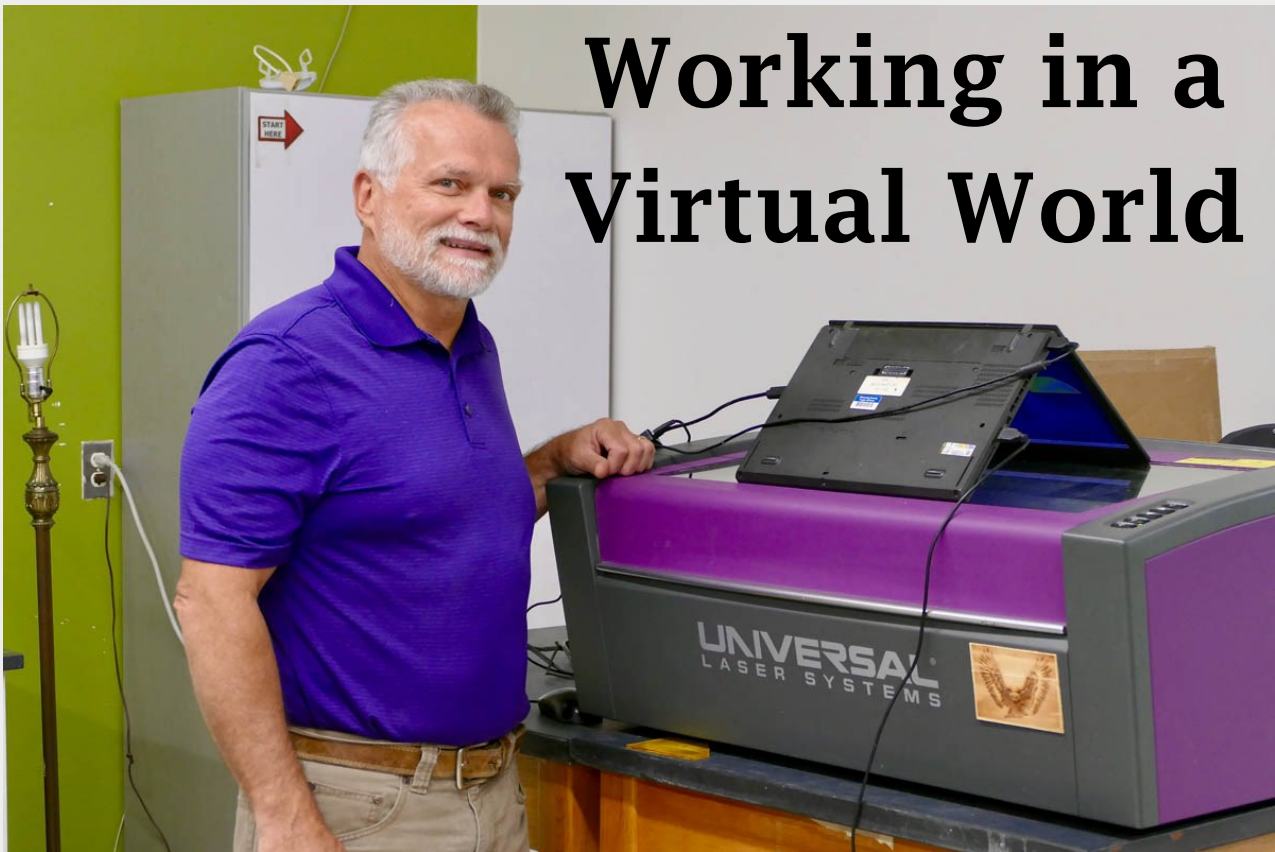


VIRGINIA
TECHNOLOGY AND ENGINEERING
EDUCATION ASSOCIATION

High School Edition

TECHNOLOGIZE

FALL 2020 EDITION Issue 2



Working in a Virtual World

Kevin Matheny, WAHS' shop teacher, uses an upended laptop to allow students at home to watch their project's progress as it's created remotely. **The headline story is reprinted, with permission, from the Crozet Gazette written by Lisa Martin . It begins on page 4** <https://www.crozetgazette.com/2020/10/05/school-notes-october-2020/>

CONTENTS:

Report from Board of Director's Fall Quarter Meeting . . 2

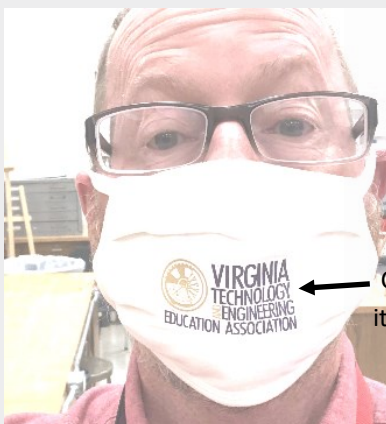
From All of Us around the State . . . 2-10

Let's Get Social . . . 5 & 8

New Selfie Contest! . . . 10

Shawn Burns Makes Local News . . . 12

Let's Zoom Meet to Collaborate . . .13

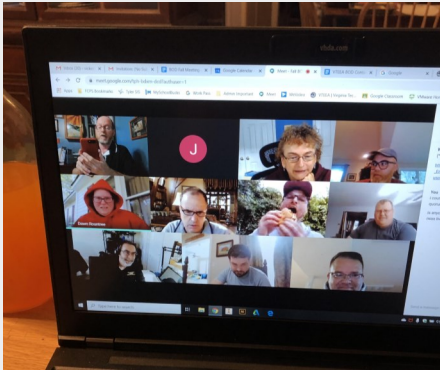


Customizable swag items are for sale on our website: www.vtea.org

Board of Director's Fall Quarter Meeting

Virtual Virginia

On the assigned day and time (19 September), eleven board of directors took the time to sit at their computer to conduct the business of our associ-



ation. It has been a surreal world since last March when schools abruptly shut down due to the spread of COVID 19.

Minutes from the meeting are available on our website.

Our president determined a quorum was not present so the agenda was talked through without any voting. It should be noted that all Regional President positions has been filled. Members are encouraged to contact their representative to the board to make your voice heard.

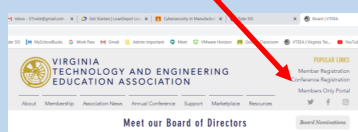


It was of interest to learn that our President had accepted a job with a Department of Defense school and was moving to London to teach this

year. The day of the meeting, Frank was on a camping vacation and actually setup up in Tim Axley's front yard. Since Tim's Wi-Fi was not strong and it was early in the morning, Frank drove to a local Biscuitville to use their free Wi-Fi from the parking lot. Our meeting went forward without interruption as the morning progressed. The changing view outside of Frank's window was interesting. You gotta love technology!

Membership in VTEEA is still only \$20. Go online ot our website www.vteea.org At top right under popular links, select the top line Membership registration which takes you to a easy form to fill out. You can pay online with a credit card.

<https://vteea.wufoo.com/forms/>



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Ideas From Around the State

Matt Brame Millbrook High School

This year the students are getting creative and designing toothpaste tube squeezers in Engineering, Manufacturing, and Technical Drawing. The students are using Autodesk Inventor as well as our 3D printers to create, prototype, reiterate, and produce a functional prototype to get all that



toothpaste out of the tube. Students have to work within parameters for overall size as well as the size of toothpaste tubes so their design will work. Having a project that students can get something to take home with in the first couple weeks is needed to grab their attention, especially in these times. Getting students to understand Inventor and use it is the goal, the 3D printer is the tool!

Shawn Burns Burton Center for Arts & Technology Roanoke

I have my first-year students create a desk organizer that encompasses several of the course concepts into one project. Each member of the team will build one of the organizers with the constraints are:

- They must all sign off on the design.
- It must contain a pocket for sticky notes (three sizes available).
- It must have a 3D printed item attached that is functional.
- It will have a laser engraved feature that is customized to the student.

This project has the students using Autodesk Inventor (CAD software), Fusion 360 (CAM software), additive and subtractive manufacturing processes (CNC router and 3D printing),



laser engraving (also works off 3 X,Y and Z axis), and finally materials and surface coatings.

This project is usually completed in the spring but with COVID shutting down the schools in the spring we did not finish the projects. What I did this year was use finishing them as my safety refresher for the now second year students.

Byron Clemson
John Handley High



(Byron, has hosted quite a few PD workshops for materials & Processing class for anyone that wanted to

attend.)

Mr. Vickers, sorry really bad flu here and spent about 18 hours in hospital... I might have answered while really messed up.....soafter 47 years COVID-19 almost did me in but WPS & JHHS have reassigned me so I am working from home and trying to motivate students using HYRID model or 100% Distance Learning. Happy to say over 33% success. BE SAFE!

Jamell Newman

Facquier County High

“The Story of Graphics Imaging in a Virtual Model”

What does success look like in a virtual classroom? If a student is maintaining good grades is that success? Well consider how that student may be maintaining good grades during a time of virtual learning. Late nights, asking parents for assistance, constantly emailing teachers to clarify homework, intermittent video conferencing. This seems like work on top of virtual work.

Success, as I have realized halfway through the Fall 2020 term, is not based on grades at all. **It is about student engagement.** Are they engaged, are they producing work outside of the curriculum. **That is success!**

Teachers should be inspiring students and finding ways to get them motivated to further their understanding of a topic. Students need to be challenged and a connection between your class topic and the real world needs to be established.

With that said success is a freshman taking a graphics course for the first time and finding the confidence to share their own work. Virtual class and face-to-face are not the same. **Consider getting out of you comfort zone and how you can make your subject meaningful to your students then you will really find success!**

The student did this on her own and without prompting. The idea is that she wanted to do it and right now virtual



learning has students throwing up their hands in frustration to the point of being opposed to doing something extra. The image is a composite using blend modes, refined selection and color grading in Photoshop. I believe the fox, birds and mountain scape were all separate images.

Scott Schlosser

Rappahannock County High

Teaching has always been a challenging but rewarding career. I have been a teacher for 29 years and there have been many changes in the responsibilities of teachers over the years.

The pandemic we are all experiencing has certainly added more responsibilities that we could have ever dreamed possible. In class

learning, online learning, synchronous vs asynchronous instruction, sanitizing requirements, communication with students and parents, grading assignments, flexibility, and many more aspects have become the new normal as we do our best to meet student needs. Teachers in the RCHS CTE department listed three areas to help engage students as well as to help create a stable environment for learning. Those areas are: 1. To keep accurate records including communication with parents and students.

2. Support students in getting the materials needed for learning such as extra packets, extra time on assignments, a pencil, etc. 3. To encourage students to do their best at all times.

These items are things that teachers have always done, but in our new situ-



ation, we must take these measures to the next level for our students to be successful. Encouragement is the area I spend most of my time with students. In many ways, I work with students more like a coach than a teacher letting them know there is support for their learning needs in the classroom and they CAN accomplish the assignments in class. Teaching is not about presenting course material and grading student projects anymore. Teaching is a much more comprehensive approach to student learning.

I have found many things that work well this year but two of them stand out the most. RCHS is on a hybrid plan and students must eat lunch in the classroom. During the first week of school, my class that I would have lunch with made picnic tables for our outside work area. Students enjoyed learning the skills and building the tables. However, students enjoy eating lunch outside this has been a wonderful morale booster as we have had many enjoyable fall days. The second item that has worked well is working on projects outside when appropriate. Construction class has enjoyed laying brick and block outside and again this has been a morale booster even though this activity is more labor intensive. In closing, it is the little things that we do as teachers that make a difference. Teachers that are able to go the extra mile to support and encourage student learning will have the most positive student outcomes.

Matt Haskins

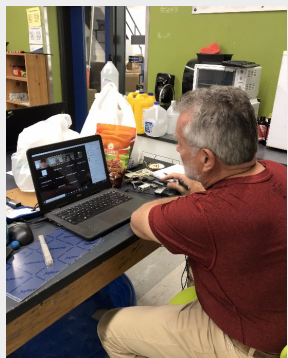
Wilson Memorial High

Things are pretty hectic and thank goodness for the Monday workdays. I didn't try to reinvent and do new things. Learning a new LMS (Canvas) has been a challenge. Other than things like safety, I send all my presentations or more academic content home to be reviewed on the out of school days and reserve in school time for hands on and shop. Getting students to submit out of class assignments on time or at all is a big challenge. I seem to stay busier and have more to keep up with.

Teaching Outside the Box

Courtesy of Crozet Gazette written by Lisa Martin

What's a shop* teacher to do during distanced learning? (*Editor's note: Shop teacher is an old term, these professionals are now known as Technology Education teachers). For WAHS teacher Kevin Matheny, the prospects were grim. "I knew I didn't want to what I did last spring, so over the summer I had to rethink," said Matheny. The division's plan for shop classes was to limit projects to those using materials like paper, tape, glue, and scissors, and students at home were not allowed to use tools, so he had to think creatively. "If I told the



kids they had only paper projects for the entire semester, I don't think they'd appreciate me," he said. "I had some other

ideas, but we were going to have to pass materials back and forth [between homes and school] so it was going to be slow."

Matheny brainstormed about what was possible and realized that his students could use their home computers to access the more powerful computers in his shop, and from there the students could control shop equipment like the laser engraver and the CNC 3D router. With his assistance and instruction, they could actually make something remotely. He reconfigured the shop layout and tested the school's **computer software called Quick Assist**, then did a dry run with a few students at the end of the first week of classes, and it worked.

Matheny's enthusiasm is infectious, and the students have responded in kind.

"I'm hands on, and this is as hands on as I can get it," he said. "The kids get to make something and come pick it up [from the front office] and have it. They are already designing different things for themselves and other family members, so as something that captures their interest, I know it's working."

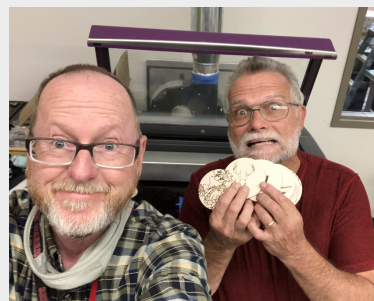
The laser engraver can work with a variety of materials such as leather, fabric, glass, ceramic tile, and stone on a surface up to 12 by 24 inches. Students have programmed the equipment to make name plates, coasters, and artwork featuring designs like sports logos, video game characters, and original drawings. Matheny communicates with students during class on Zoom or over the phone, guiding them through the process and troubleshooting their programs, and he places their chosen raw material in the engraver when they are ready. "I've learned to put a laptop upside down on top of the equipment with its camera on, so the students can watch the progress of their design as it's being made," said Matheny. "One student drew and designed a three-dimensional Pokémon character and had the 3D router make it out of a block of wood," he said, showing off the finished piece. "If you know anything about routing, that is amazing." He hopes to add a 3D printer option to the mix in the coming weeks. Matheny said that both WAHS and the school division have been very supportive of his efforts, helping him to get more computers and cameras so he can help multiple students at once, and he's thrilled to see the students tackling the programming challenge. "Doing what they're doing is a real career that somebody could actually have," he said. "They may not realize it yet, but they will—it'll click. I try to make the instructions super easy so it's not intimidating for those that don't like computer stuff, and when they see the results, they think it's awesome."

The whole experiment has transformed gratifying and productive, and he hopes to share what's he's learned with other shop and engineering instructors. "It's funny, I'm the most excited teacher maybe in the whole county," he said. "I tell people—run over that hurdle, run around it, or run through it, but don't let something stop you. Figure out how to solve the problem, make it better for the students."

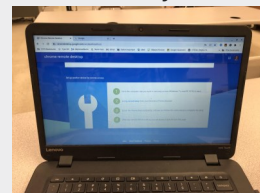
Ron Vickers Sherando High

I first learned what Kevin was up to was from a Google Meet where we were chit chatting about what was coming for the year. At that time, we did

not even have a grasp of what type of schedule our system was going. I got very excited about his effort to engage virtual students. That Wednesday afternoon, I was able to follow directions (via a phone call exchange) for me to take control of his laptop while I sat at my desk 100 miles away. We made steps in using Adobe Illustrator to download the Warrior clip art and eventually burn the image on a round piece of glass.



The following Wednesday I drove to his school to pick up the actual part! I returned to my school and immediately tried to figure out how our kids could use their Chrome books to do similar work in Frederick County. It took getting help from Dave Curry at Admiral Byrd Middle telling me about the app **Remote.desktop.google.com** for the student Chrome books to engage with my Windows 10 laptop. I checked with my IT folks to make sure they did not have any problems with fear of hacking our system. Since I had to be at my laptop the



entire time a student was controlling it from his/her home it was safe to do. All I have to do is place the material to laser engrave in the machine and guide the student through the process of activating the laser just like he/she was beside me in the lab. Our testing has gotten a couple virtual kids engaged. I am still thinking how to get my 3D printer operated by virtual students.

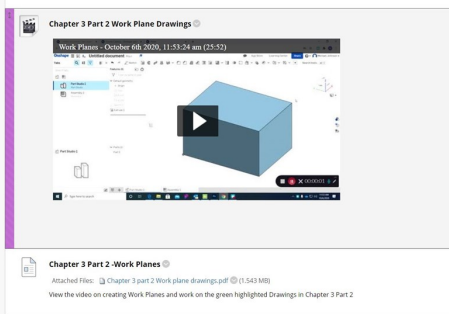
Since WAHS's Technology Department is undergoing a major upgrade in facilities, the situation of virtual learning may be some good as several contractors were still working while classes were in session with Zoom meetings. It was sort of chaotic to the casual observer.

Mike Johnson
Northside High

In Roanoke County we are on the hybrid schedule, students are in school 2 days a week and can be completely online if they so choose. One class that seems to be working for our students so far is Engineering Drawing. We are using the **free online software OnShape** and it is similar enough to Autodesk Inventor that the learning curve for all of our Engineering Drawing teachers doesn't seem overwhelming. We use Blackboard Ultra, which is very similar to Canvas for our remote presentations. We can talk to students online, show presentations and even sketch on the screen. We have learned a few lessons as we've started the school year.

We have learned to record every lesson. You will have students that miss the class or do not log in or even have technical issues. Recording the lesson helps them and you. It makes it much easier to do so when we are teaching software because we are at the computer the whole time anyway. We have also learned to communicate with each other and share tips, tricks and created worksheets and such.

The image above is a screen capture of a recorded lesson, with the assignment posted afterward, in Engineering Drawing. Stu-



dents can go back and look at the lesson multiple times if needed to understand a concept.

Al Alexander
Buffalo Gap High

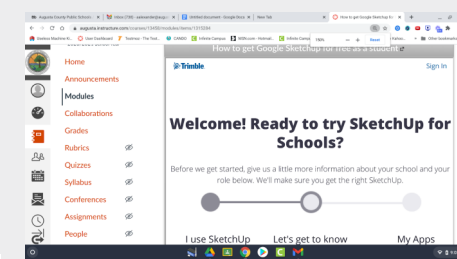
"A Project Based Activity for Virtual Learning using Google Sketchup"

As I was preparing for teaching virtually, I was searching for an activity which could be project based online. One of the activities I tried for the first time was a group of activities using Google Sketchup with my Technology Foundations and Technology Transfer classes. I have never used Google Sketchup. I have previously used AutoCAD,

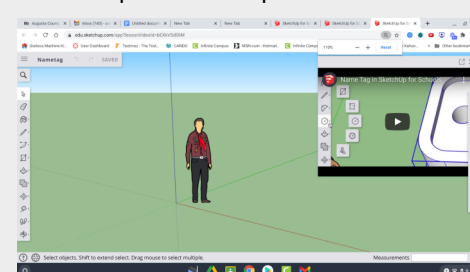
TinkerCAD, and Inventor with my classes for introductions to 3D modeling, 3D printing, 2D drawing, and designs.

Google Sketchup is easy to use, has educational resources for projects, and is also capable of doing 2D drawings using the applications.

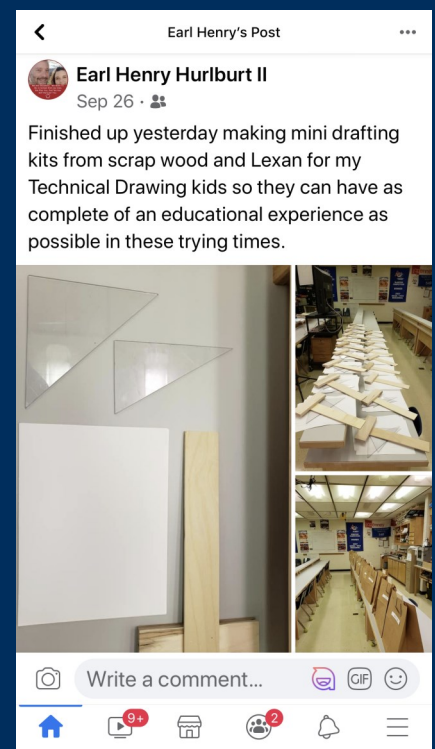
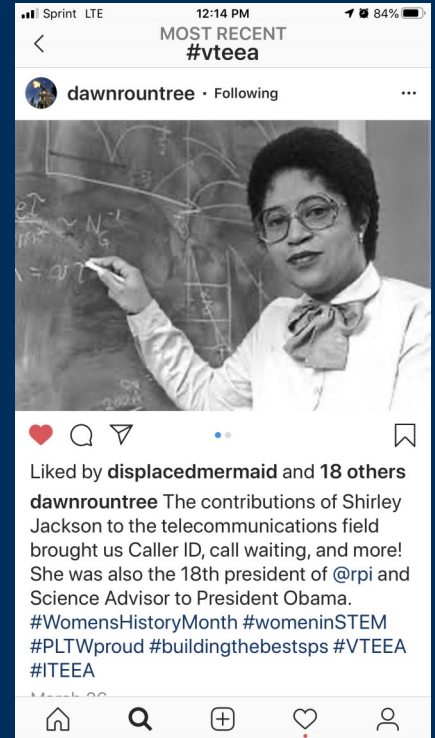
The first thing I had to consider was if students were able to download the application. Most students did that with no difficulty. After all, almost all of our students have downloaded some application or game previously. I included in my Canvas modules a Loom Video on how to do that. That seemed to be enough for all my students to successfully complete the first hurdle in using this application. Also, the module took them to the download page, which prevented them from having to do a search and prevented them from going to the wrong address. They log in with their school email address. I have them log in with Google which helps prevent problems as well.



I had the students in the next module watch a video which explained the basic tools in Google Sketchup. I had the students complete 3 projects that are available in the educational resources. They were a Name Tag, Bird House, and Mike's Malt Shop. These were 3D models. I normally introduce students to 2D drawings first, but I did 3D first because the 3D projects included a step by step video in the corner of the screen. Students could stop the video with each step, complete the step in their drawing and continue with each step in that manner. They could also back up the video if they needed to see that step again. If they had problems, they would email me the time that the video was at so I could further explain that step.



Let's Get Social!
Here's what you're posting about



(Al Alexander continues)

Here is a link to the projects: <https://edu.sketchup.com/app/?auth=goog>

The last set of projects were completing simple 2D drawings. I developed a module on how to set Google Sketchup to 2D and students completed simple drawings.

The last set of projects, which I am in the process of developing will include simple Multiview drawings.

In conclusion, if your students have Chrome books, looking for something that can be project based and usable on other platforms as well, check out this available software application that is free for education. Most students enjoyed this activity as a change of pace in virtual education as well.

If you have any questions, please feel free to email me aalexander@augusta.k12.va.us

Jerry Ridgeway Turner Ashby High

Design Projects in a COVID Caused Virtual World

In my Engineering Explorations I class we always do a structural design activity. I tie this activity into our discussion of civil engineering. This year, after discussing what civil engineers do and some of the requirements to become a civil engineer, we transitioned to designing balsa truss towers.

The students were given 21' of $\frac{1}{8}$ " square balsa to build a 10" long tower that had to be 2" on two sides and $2\frac{1}{2}$ " on the other two sides. **I provided, via our learning management system (Schoology), step by step directions, and pictures, on how to draw the tower. I then provided directions, and pictures, on how to build the tower.** These things could be done "live" if you have the right kind of camera but I didn't have the time or patience to do all that so I did it the way I could figure out.

I prepared kits for the students to pick up here at school for the ones who could not come in to work. We are virtual right now but can have small groups (no more than nine students at a time) in to work. Of the 44 students enrolled in the EEI classes, all but nine either picked up materials or came to school to work.

If students completed the towers at home, I asked them to take a picture of them laying beside a ruler so I could check the height of the tower, and the width of the sides. They then emailed me their tower pictures. If the towers were done here, I checked them here. As far as testing the towers? I'm going to try to do this live, by Zooming from my Chrome Book. I have asked the students to drop their towers off so they can be tested (if they were able to pick up kits they should be able to drop off their tower). If they can't drop them off I have no idea how, or if, they'll be tested. I do not do any of the sophisticated things re Zoom and other applications that my colleagues use. I've had a hard enough time just figuring out how to do the basic things so I can do my job (I have used Navi once, and breakout rooms in Zoom once in a while). I HATE having to teach this way, but at least I can say I'm doing better now than I was two or three weeks ago.

Dawn Rountree Nansemond River High School

I'm here in *Surprising Suffolk* doing just that- surprising my kids at the start of every class. While my virtual students enter class, I rock a different mask or hat and have fun music that fits the theme. It started as a way to hide a swollen eye but has really turned into something

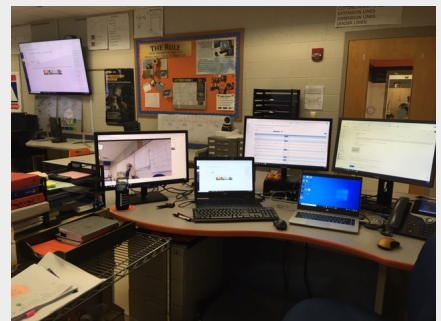
fun for me and the students. They never know what I am going to have on next and even show up early so they don't miss it!



I have also been incorporating gif mood meters as a way to check in with my students. I get to see how they are feeling, we giggle about the gifs of the day, and they even check in on me! Staying sane is very important right now. We are all trying hard to find a balance that works. I have started reminding myself that "I am not perfect and every lesson doesn't have to be either." I want to encourage all teachers to try to find a moment each day to reflect and find at least 1 positive thing to say about the day. Did a student you've never met turn their camera on for the first time? Did a student tell you a class activity was fun? Did a self grading quiz save you time? Were you able to step outside for some fresh air and a nice walk? The silver linings will help keep us mentally healthier! My Love Languages are Words of Affirmation and Acts of Service/Kindness; can you tell?! If you need some positivity, just let me know and I shoot you some sunshine with my Care Bear Stare!

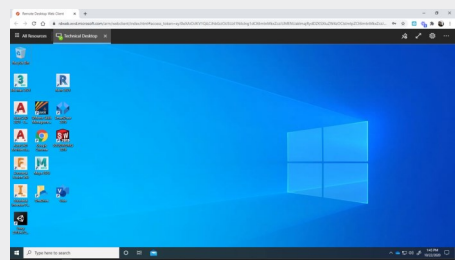
Laurie Limoge Jamerson Orange County High

I am teaching Technical Drawing & Design with a variety of methods. Canvas with recorded videos & scanned assignments, live with Swivl showing the white board and the document camera showing the assignment and holding a Google meeting! **It looks like Star Trek.** The large monitors also project my laptop- sometimes it is the Canvas screen, sometimes AutoCAD.



Michelle Gagliardi
Frank W. Cox High

Technology Education Teachers and students in Virginia Beach Schools have been provided with a Windows Virtual Desktop by the district. Students remote access drawing and design software with their Chromebook. I have been using AutoCAD 2021 with my Technical Drawing students, Revit 2021 with my Architectural Drawing students, and SolidWorks 2019 with my Engineering Drawing students for over a month now. Students working virtually have been creating the same drawings that we did in BC (Before Covid) times! There was a definite learning curve teaching this virtually (a million teacher-made videos!) and it had its share of hiccups



when it was introduced, but it now works great and has been a lifesaver since old drawing assignments and projects just need reworking rather than reinventing. Students save drawing files to a Google Drive File Stream. They can then share a link for me to open their drawing file. We are definitely reducing paper consumption! Process is slower than if in the classroom on a desktop, but it works nonetheless!

John Ligon
Cosby High

Teaching this year is nothing like I expected to be and this seems to be the same thing that I hear from my colleagues across the state. Many have said that it is like the first year of teaching all over again even when they have been teaching for a number of years already.

Teaching technical drawing has been a daily challenge for me for a variety of reasons including software issues, problems accessing things through canvas and just simple internet connections. Some days I feel more like tech support after I have given my general directions for work that should be completed during the class

time. Fixing everything that you can imagine and not believing that I am actually teaching them anything specific in the end.

In technical drawing I have implemented more projects with the emphasis on sketching and engineering design to keep the students working, learning and focused as much as possible. Since the start of the year I have given the students several design projects where they have to work through the engineering design process that I have gone over with them. Usually the outcome is something simple that they can make with whatever they have at their house, a paper bridge, temporary shelter and also designing a nameplate for their desk. Even though these are very basic projects to me they seem very complex to the students because they do not have the experience working through these types of projects. Here is the temporary shelter project as it is posted on canvas.

SHELTER CHALLENGE

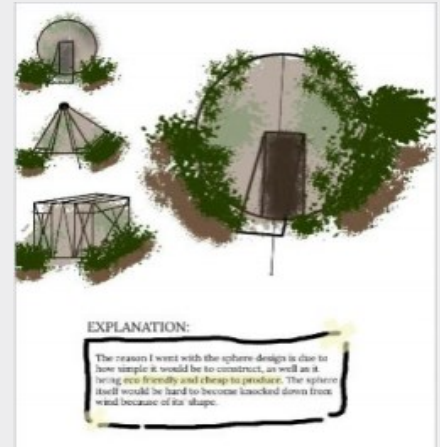


One of the worst after-effects of a disaster or bad storm is the lack of shelter for the survivors. Can you design a cheap, but effective form of temporary housing that could be easily transported to a needy area for families to use for shelter? Are there existing containers that are used today that could serve as models for these shelters?

LEARNING TARGETS

1. Sketch multiple solutions to a design challenge.
2. Collaborate and openly discuss my ideas, professionally, and

rationally. 3. Identify, document, organize and save my ideas / solutions on the EDP Template. 4. Submit my work correctly, and by the deadline. solution.

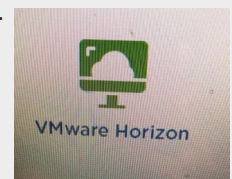


I believe that the rest of the year will be just as challenging as the first eight weeks and I hope that I can connect with all of the Technology Educators across the state and US to share anything that will help us teach the skills we need and provide hands on experiences for the students so that they can apply what we are trying to get them to understand.

Brittany Carper
Sherando High

Starting into the unknown of the 20-21 school year, I felt pretty good. Our school system's IT department worked through the summer to give us a way to access our Adobe and Autodesk programs through the Chromebooks.

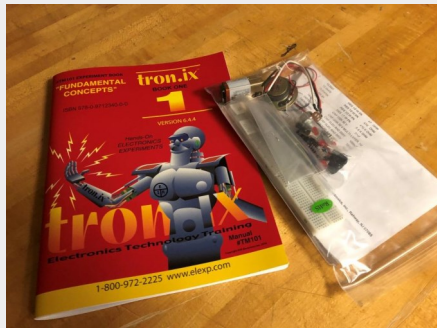
We began the school year and implemented VMware Horizon



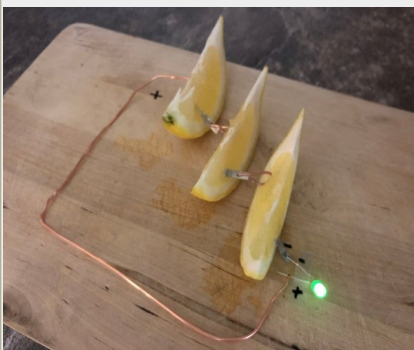
Apps with our students. This application accesses a virtual server that is hosted at the school board office. Students can use an html version or download a client for the Chromebook or desktop. After diving in, we ran into a number of issues, from Google syncing, to incorrect passwords, to drives being down, to students not being able to access the client at home, and logging in to three or four different things to just get started. This is not to say anyone is dropping the ball, this is just to say it's new and we're all still navigating issues and it's hard.

Ron Vickers
Sherando High

In electronic class I faced having more students virtual than I had in-person. We had used the Electron Express -RSR Electronics, Inc. Tron.ix "Fundamental Concepts" experiment book to run bread-board circuitry. They sell a kit of parts for \$29 that includes over 40 lessons.



I find looking at the Instructables.com site, I get ideas. A set of instructions by *tonyware in circuit electronics* got us making electricity from lemons. My chemistry department did not have any magnesium strips I could get, but I was able to get a roll of it on amazon.com for only \$5.95. The students enjoyed doing this and we even sent a baggie with the copper wire and magnesium home so virtual students could do this also.



Lindsay Crump
Sherando High

Now, more than ever, we are faced with the challenges of teaching Tech Ed in a virtual world. I've struggled to engage my students in Imaging Technology (Photography.) That was until I asked each student to sign a required camera contract allowing DSLR camera usage at home. Each student was given a school loaned camera, camera bag, charger, and an SD card to provide equal opportunity for all. Now I provide a "Weekly Photo Challenge" for each student to participate in each week. So far, it's been a fully engaged activity with excellent results!

As many of you may have read on social media, we learned **Johann Odom**, beloved Henrico High fellow Technology Education teacher, TSA advisor, and coach passed away unexpectedly. The Navy veteran also previous taught at Elko Middle School and Varina High School. Our hearts go out to his family.



Ross Creecy
Woodrow Wilson High

In Communication Systems and Graphic Communications, I teach Photoshop in preparation for Certiport certification. In Portsmouth, our students have Chrome books. I have found <http://www.photopea.com> to be a worthwhile substitute for Photoshop. I have encouraged students to connect a mouse to their Chrome book and to connect their Chrome books to a larger monitor or TV if possible to replicate the experience of using Photoshop in the classroom. I have a supply of spare mice and HDMI cables at school and have offered to give them out to students as needed.

I have traditionally taught Photoshop skills live on the big screen in class. Even though we meet daily on Zoom, I quickly realized teaching live through screen share was not going to work. Slow connections resulting in blurry screen shares made that impractical. I have been breaking my Photoshop lessons into smaller chunks and using screen capture to record lessons. Then during class, I am available to answer specific questions about certain steps in the process. This is a practice I will probably continue once we are back in person.

While not a perfect substitute for Photoshop, the look of the screen and the keyboard shortcuts are similar enough that I hope students will be ready for certification testing later in the year when we meet again in person.

Let's Get Social!
Here's what you're posting about



Wanda Hulse
Waynesboro High

This year has been a very different thought process for doing hands-on-projects at home. So to keep my sanity and keep the students engaged in a Zoom meeting, I followed my regular project schedule with an added twist. The students have completed two projects

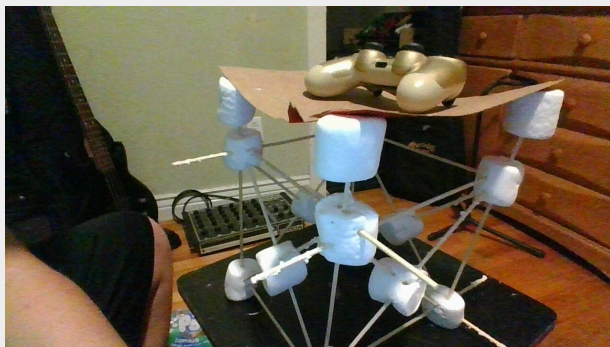


at home with whatever materials they could find and then I scheduled a material pick-up for addition projects.

One of the projects that has been completed at home is build a tall tower, to learn about load, compression, tension, and prototypes. The students had to

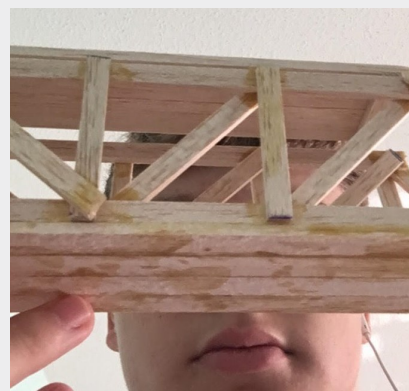
build the tallest tower 5" or taller, that could hold a load. The tower could be made from most anything they could find at home (teacher approved) that did not snap together or interlock. I provided them specifications if using marshmallows and spaghetti, game cases, playing cards, and any type of blocks. Once the tower was completed the students had to put a small piece of cardstock on top and apply a load, which could be deodorant, lotion, soap, or anything that wouldn't break when it crashed because I didn't want their parents to be upset if they broke something. When completed, some students were comfortable enough to display their drawing and tower in the zoom meeting but most students emailed me a picture of their tower holding a load (a bar of soap). In a pre-covid tower building project the students would be working with partners on the

third day of school, building the tower with noodles and marshmallows. The tower is weighed, then blocks are added on the tower until it collapses. The blocks are weighed and the



students would calculate the strength to weight ratio.

The students are finishing up building balsa wood bridges. The material for their bridges was included in their material pickup bag. For the bridge building project the students received balsa wood pieces, graph paper, cardboard, and wood glue which was put in pill bottles that was donated by the local CVS. Class started with a discussion on different bridge types and why bridges fail. They had to design and draw a truss bridge to certain specifications. I demonstrated how to build the bridges on zoom or they could use their own design. I have three classes of Technology Foundation so I have been building three different bridges. When complete, I will test the bridges I made with the bridge testing during the zoom meeting and they will test their bridges with household items.



Joe Belcher
Bayside High

An old saying comes to mind, "The more things change, the more they stay the same." I am entering my 27th year as a Technology Educator. The virtual world has created issues for non-technological literate teachers. Tech Ed teachers adapt and proceed accordingly. Most issues are occurring due to the communication issues of our devices due to the amount of data flow on the internet. It has become a challenge to trouble shoot. Logistical issues abound. Our electronic textbooks have yet to be migrated to the new stu-

dent system and we are nearing the end of 1st semester on a 4X4 block schedule. Scanning and creating necessary materials is a necessary evil. The main point is to stress about what you can control and to try to ignore what you can't control. I have never lost the feeling that I can do better. If you are your own worse critic, then you are doing your job as an educator well. This too shall pass!



Austin Mantey
Tallwood High

The toughest part for me has been the 'hybrid' environment. I have 5 kids in class (freshmen), but 10-12 grades are still remote/ virtual. So even though I am in the classroom w/ those 5 students, I still have to teach into a camera. If I step over to help a student in-person, I am no longer in camera/ audio range at my teacher desk, and now 75% of my students can't know what I am teaching/ helping with. Super frustrating.

Terry Beddow
Granby High

I am really working hard to stay on top of this new workload. I use canvas and Zoom. Our district is all virtual. We do have a plan to return to a hybrid model, but that is based on conditions and the days of the week would be a variety of face-to-face with masks and social distancing, synchronous virtual, and online asynchronous instruction. However, until that day actually arrives, **I have set up a room in my house that has become my virtual classroom. I have a 3D Printer, a document camera, and a set of drafting tools that I use to for teaching. The district CTE purchased online access for engineering and technology students to a program called "The Solid Professor"**. I use it to supplement my instruction with spatial visualization and engineering graphics theory. I have yet to figure out an effective way to teach AutoCAD, Inventor and Revit, with a hands-on approach. We can talk about it all we want, but until students can use the actual software, the benefits of "The Solid Professor" will be limited. As most drafting teachers may attest, sketching methods and techniques are used more than normal.

In Technical Drawing class I use a worksheet like the one to the right. Use the steps to draw within a rectangular box labeled A—D from top left corner in clockwise manner.

READING A RULER NAME _____
Date ___/___/___ Period _____ St. # _____
=====

MEASURE PICTURE #1 INCH, HALF, QUARTER of an INCH
BE SURE TO CHECK EACH INSTRUCTION WHEN YOU COMPLETE IT.

1. Place your ruler on Line AB. Measure 2-1/4" across from Point A. Make a dot to mark this point. Call it Point E.
 2. Place your ruler on Line BD. Measure down 3-3/4" from Point B. Make a dot to mark this point. Call it Point F.
 3. On Line BD, measure down 5-1/4" from Point B. Make a dot to make this point. Call it Point G.
 4. On LINE BD, measure down 6" from Point B. Make this Point H.
 5. Point I is LINE AC, 6-3/4" form Point A.
 6. Point J is on LINE AC, 4-3/4" rom Pint A.
 7. Point K is on Line AC, 3-1/4" from Point A.
 8. Draw a line to connect Point J w
 5. Point I is on LINE AC, 6-3/4" from Point A.
 6. Point J is on Line AC, 4-3/4" from ith Point G.
 9. Draw a line to connect Point I with Point H.
 10. Draw a line to connect Point E with Point F.
 11. Draw a line to connect Point E with Point K.
 12. Point L is on Line J G, 2-1/4" from Point J.
 13. Connect Point E with Point L.
 14. Point M is on Line E L, 4" from Point E.
 15. Connect Point M with Point F.
 16. Point N is on Line E L, 4-1/2" from Point E.
 17. Connect Point K with Point N.
 18. Point O is on Line I H, 1-1/2" from Point I.
 19. Connect Point O and J.
 20. Point P is on Line I H, 5" from Point I.
 21. Connect Points P and G.
- What does your picture show?

Tom Nuckols
Jamestown High

Williamsburg-James City County Schools is completely virtual. Our K-3 students start in person instruction two days a week starting today (10/26/2020). During virtual instruction, I start classes up to five minutes early to allow for some greetings and social time before class. I also remain after class to allow for questions and some social time. Community building is extremely important (as we all know). During work time, I establish breakout rooms in Zoom and one-by-one I call students out of the breakout room to the main room to check-up on them; particularly if they seem to be struggling. I wish that I could say that I were an expert at Zoom, Canvas, On-Shape, etc. but I am not. I am learning a little more each day and growing into the new job description. I have not hit that point that I have anything to brag about. I am still treading water with bricks overhead. Hopefully, I will pick up some suggestions from others in your article (Editor's note: Oh, don't we all, let's continue to help each other.)

Goo ahead, JOIN the association.
It is a simple form & still \$20.



www.vteea.org



Announcing a new Selfie Contest
*The Technology Education & Engineering teacher
that best shows what teaching in a
COVID-19 world looks like.*

Win a \$50 dollar gift card of your choice (Chain restaurant, Amazon, Lowe's or Home Depot.

- ◇ Must be an original photo of yourself taken by you (..hence a selfie)
- ◇ Must have been taken and posted online between October 30—November 30, 2020
- ◇ Sherando High TSA members will be the sole judges. They are fundraising to provide the prize.
- ◇ Must be posted on at least two public accounts of either Facebook, Instagram, or Twitter
- ◇ Each entry must have #vteea , #TechEdRules!, and a caption describing what we see.
- ◇ Enter as many times as you wish before the deadline date.
- ◇ CTE Administrators are welcome to participate.



Question? - Send
Ron a text for a
ruling.

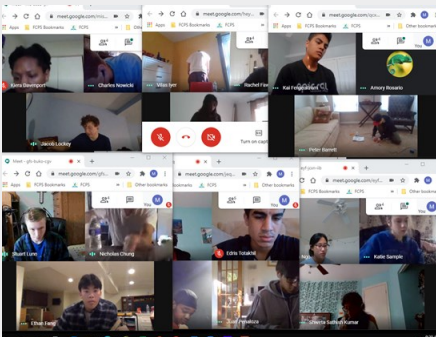
Michael Piccione Chantilly High

I've found to teach in a virtual environment I've had to flush out ideas more and not just make things up on the fly. However the need to modify my virtual activities on the fly happens a lot, especially when I find technology doesn't act the way it should or students don't have access to stuff they need. Chantilly Academy is currently virtual but will be going to a hybrid model where some of my advanced students can come to work in the classroom on Mondays, which is our planning day. During this open lab work day, I'll have them work my Blended Learning Assignment/ Lab organization and Safety. Students pick something in the lab or class topic to teach about/gather tutorial resources about and create an activity that includes tutorials in the form of **Flipgrids** and accompanying materials like maintenance, assessments, and user guides. The also look at how the tool is being used or materials are stored and help to better organize it using the engineering design process, evaluating the user's needs, etc. then they can CAD and rapid prototype solutions to help the safety and organization. I'll be able to have some students working in the class while others work virtually on the various parts of the assignment. During normal virtual class time, we'll continue with the regular class curriculum.

I **love the use of Jamboards** as a way to collaborate and have students brainstorm, put together discussion topics, and review materials. I also **have students sketch together on a Google drawing** by having one create the google drawing in word or sheets, then share it with the other, and **they can both edit at the same time**, this is for quick design stuff were CAD isn't needed. I've started using more **Flipgrids** so students that **don't want to write a lot**, can share thoughts or projects via video. For CAD we'll start using **Onshape** so students will work virtually through Onshape's provided curriculum, about 3 to 5 lessons, to build competency, then I'll give students more open ended problems with my own instruction as they build skill.

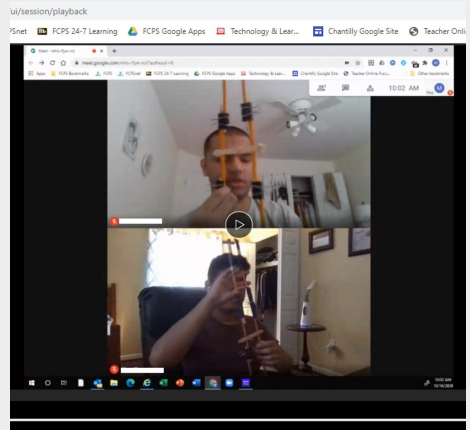
I've had to adjust group projects so students have ways to sign up for various options and work together. I'll do simple

projects where the student design and build a solution with either household materials, or stuff I sent in a kit. I even have them work in groups to build a group designed project and they're expected to build basically the same item. So I use a lot of shared Google spreadsheets with premade Google Meet links that act as breakout rooms. I **use the multiple google breakout rooms trick often** when students are working in groups, especially collaborative building: On a google doc or sheet, create multiple breakout rooms following a naming guide, ei. meet.google.com/lookup/chspiccioneborA...B...C... by changing the last letter, I can easily make lots of meetings as breakout rooms and students can then join whatever one they want, while still being present in our class Blackboard virtual meeting. I found a "Mute Tab" chrome add on, that allows the chrome tab to be muted, so I can watch the kids work when building cardboard engineering/spaghetti bridges etc. but I don't have to hear them unless I unmute the tab. I'll pop in to the various google breakout rooms, unmute the tab and my mic to check in and discuss group related topics or solutions. This can get complicated so I don't always use it, but if kids are doing hands on activities in groups, it's a must. See pic below.



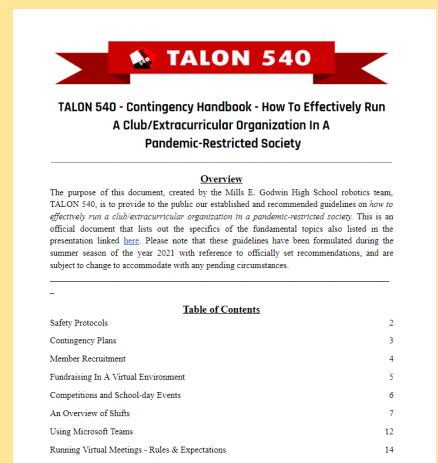
When they're done building and it's time to present, I share each Google meet room one at a time in Blackboard and have the students turn on blackboard mics and present. Then I un-share that tab and share the next tab, repeating the process. I even recorded the Blackboard session so the students can view everyone's presentations in case they were absent, but I don't record their individual breakout rooms while building. It took some practice, but it was good to see the kids communicating and working together and they could see what the other groups

were doing as well so it was more like being in the classroom again.



Earl Henry Hubulrt II Godwin High

Since March 16th, 2020 my **FIRST Robotics Leadership** students and I along with my assistant mentor, Samii Muse worked about 4+ per week (March – Sept.) closing out this past year's season with hosting virtual leadership speeches, town hall meetings, elections, etc. as well as creating a handbook on how to run a club or afterschool program during a pandemic. Here is the public link to the Google Drive folder that has the living documents as changes being made when needed: [TALON 540 Pandemic Handbook](#).



If you have any questions, comments, or suggestions please feel free to e-mail me at ehhurlburt@henrico.k12.va.us

(Editor's Note: This resource is fantastic for any mentors of First Robotics clubs.)

Roanoke County teacher wins \$50K teaching

Claire Mitzel - October 15, 2020—The Roanoke Times



Roanoke County mechatronics and robotics teacher Shawn Burns is one of 15 second-place winners of "Harbor Freight Tools for Schools Prize for Teaching Excellence." Burns is the only finalist from Virginia in the national competition. He works with students on a claw robot during class at Burton Center for Arts and Technology on Thursday after the announcement was made.

As school leaders and reporters walked into the classroom of mechatronics and robotics teacher Shawn Burns on Thursday morning, the Burton Center for Arts and Technology teacher continued working with his students, unfazed.

Principal Christian Kish told Burns that the group was there to see how career and technical education classes operate in the COVID-19 era. In reality, Kish was about to announce that Burns was one of 18 national winners of the 2020 Harbor Freight Tools for Schools Prize for Teaching Excellence.

Kish held up three posters, asking the students to read the words on each as a "sound check" for the reporters. On the third, students diligently recited: "Harbor Freight Tools for Schools congratulates Shawn Burns, 2020



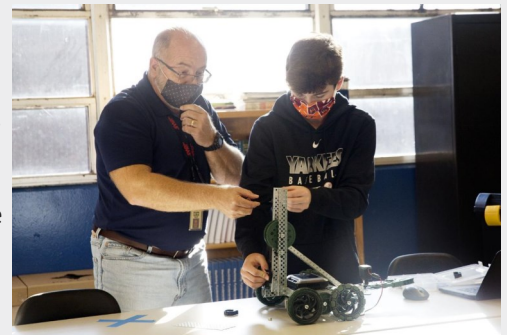
Prize for Teaching Excellence." "Oh!" several students exclaimed as they processed what they just read. Burns will receive \$50,000 as part of the prize; \$35,000 will go toward the school's skilled trades program and \$15,000 to him personally.

"That money is going to go a long way for some new equip-

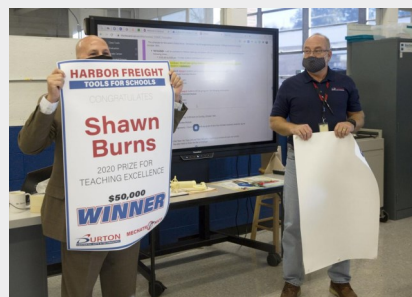
ment," Burns said. "Of course, new toys for the kids ... but it goes to enhance the learning. And that's what you're so thankful for."

Tools for Schools, a philanthropic project of Harbor Freight Tools, advances skilled trades education in public high schools, and the teaching excellence prize recognizes outstanding skilled trades instruction, according to a press release. Burns was one of 600 applicants. A panel of judges narrowed the field to 50 finalists. Three grand prize winners won \$100,000, and Burns was one of 15 prize winners to win \$50,000. "We could not be more excited to recognize and honor your work today," said Erin Walsh with Tools for Schools, who participated in the recognition virtually.

Sophomores Chris Dunn and Joshua Clements said Burns is one of the reasons they look forward to their advanced manufacturing class. Dunn said the class is "kind of the step to pave the way" to one day work for NASA. He's taking virtual classes this semester but comes to Burton in-person, so it gives him something to look forward to. Clements agreed; when he's sitting in his academic classes on other days, "all I can think about" is Thursday, which is when he goes to Burton. Burns served in the U.S. Navy for 25 years as a machinist before becoming a skilled trades teacher. He said he uses project-based learning in the classroom. His students have the opportunity to earn industry credentials, and for the past three years have participated in an apprenticeship program with local manufacturing companies.



"We've got some great programs here," Burns said. "But looking at the people that I competed against, there's great programs all over the country, which makes you feel good."



Mechatronics and robotics teacher Shawn Burns, right, reacts as it is revealed to him and his class by Christian Kish, principal of the Burton Center for Arts & Technology, that Burns is one of 15 second-place winners of "Harbor Freight Tools for Schools Prize for Teaching Excellence." 12

VDOE inspired Collaboration Effort

Ron Vickers

Back in July I remember getting an email from Dr. Lynn Basham with dates and times for “Technology and Engineering Education Meetings on Zoom”. Her effort was made to recruit volunteer hosts to organize Q &A on the different contents we teach. I clicked into one and enjoyed seeing and talking to a couple of teachers about a class I was scheduled to teach. As far as I know, there were not many follow up meetings and the effort fizzled out. It did encourage me to try out Google Meets for some folks I felt comfortable with to see how this might go. I was hoping to begin a beautiful relationship with someone that would make my upcoming school year a bit easier. While I’m still working on that, I did make the connection with Kevin from WAHS that turned into what was reported on earlier in this issue. To the right is the listing of teachers that agreed to host the initial meeting. I have no idea if they would want to spend more of their time but it may be worth a try .



	A1	Program/ course	
	A	B	C
1	Program/ course	Lead Teacher	email
2	PLTW High School Program	George Bishop	geobishop1961@gmail.com
3	PLTW Middle School	carol medawar	cmedawar@pltw.org
4			
5	Introduction to Technology	Alisa Rushing	alisa_rushing@ccpsnet.net
6	Technological Systems	Debra Shapiro	debrashapiro@spsk12.net
7	Inventions and Innovations	Kathleen Stansberry	vteeaexec@gmail.com
8	Engineering	Olimpia Stein	piutza@gmail.com
9	Electronics	Chuck Thomas	wormcastle@icloud.com
10	Materials and Processes	Byron Clemens	clemens@wps.k12.va.us
11	Manufacturing	Aaron Meyer	Aaron.Meyer@nn.k12.va.us
12	Technical Drawing and Design		
13	Engineering Drawing and Design	Michael Johnson	mejohnson@rcps.us
14	Architectural Drawing and Design	Katrina Owens	kowens@nps.k12.va.us
15	Communication Systems		
16	Digital Visualization	Dawn Rountree	dawnroutree@spsk12.net
17	Modeling and Simulation	Jacob Leonard	jleonard2@wcpss.k12.va.us
18	Aerospace	Erik Kittleson	ekittels@LCPS.ORG
19	Construction Systems		
20	Graphic Communications	Britney Carper	CarperB@fcpsk12.net
21	Imaging	Maurice Frazier	maurice.frazier@cpschools.com
22	PT	Cloria Barnard	Cloria.Barnard@cpschools.com
23	T of Robotic Design	Ray Wu Rorer	wurorerr@fcps.org
24	Technology Foundations	Jenae Edwards-Jones	jenae_edwards@surrsschools.net
25			
26			

Share Your News

We know you know things that others don't yet, why not get it published? VTEEA wants to spread the word to educators with similar interests to yours. You can write about any content relating to Technology, Engineering, and/or Education. Please consider adding a picture to enhance your article.

Don't overthink this, take the 10 minutes to share your news. It does NOT have to be perfect, we'll clean up the prose! I'd love to know what is happening in your neck of the woods. You can email me, send a text or even call.

Give me a shout and I'll try to make you famous in our world!

Ron Vickers, Publications Editor
57rvick@gmail.com 540) 860-2807

TSA Updates

BJ Scott, State Advisor

First I want to remind you that registration for the fall virtual events is open and underway. Registration can be done here at <https://www.registermychapter.com/TSA/VA-FLC>



Secondly some of you have approved chapters, but not affiliated chapters. I cannot upload all of your students to the registration portal until you are affiliated. If you put your students into the National system, they will be in the Virginia system once you affiliate as I can upload them straight to our Virginia system with the new system. So put your students into the National system, and they will be there with every event we have and you register for this year. (So if you type the names in the National system, they will be in the Fall Virtual events registration, Regional Fair registration in the spring and Technosphere registration as well. You will only have to type them in once, not for every event.)

Thirdly, if a competitive event is running now. We have all the judges in place and want to make the best use of their volunteered time. With the new system, we are also using a more sophisticated judging system in these virtual times. The company plans to have everything in place for us to start judging by the beginning of next week.

Finally, just a reminder of the Friday Q & A sessions that will take place every Friday at 3 PM until at least the beginning of November. The reoccurring link to that meeting is <https://zoom.us/j/97092270597?pwd=b2VpYnh3TFJPOGxiU2Y4eFdtb1JnQT09>