Commack U.F.S.D. Board of Education

ADMINISTRATIVE REPORT

JANUARY 9, 2020

Agenda

Capital Projects and EPC Update

Technology Program: State-of-the-District

Committee Updates

Capital Projects and Energy Performance Contract

Energy Performance Contract

Capital Improvements

2019 Bond

The Continuation of Commack's Energy Conservation Plan

- **Phase One EPC** ($20M+/-) Completed 2017
  - Resulted in more than $20M verified savings and aid necessary to pay for the project and
  - seven buildings were recognized with Energy Star ratings for reduced energy costs and carbon footprint.
- **Phase Two EPC** ($15M+/-) Commenced 2019

The Continuation of Commack's Energy Conservation Plan

Kieran Moran
Danny Haffel

Johnson Controls

Energy Performance Contract

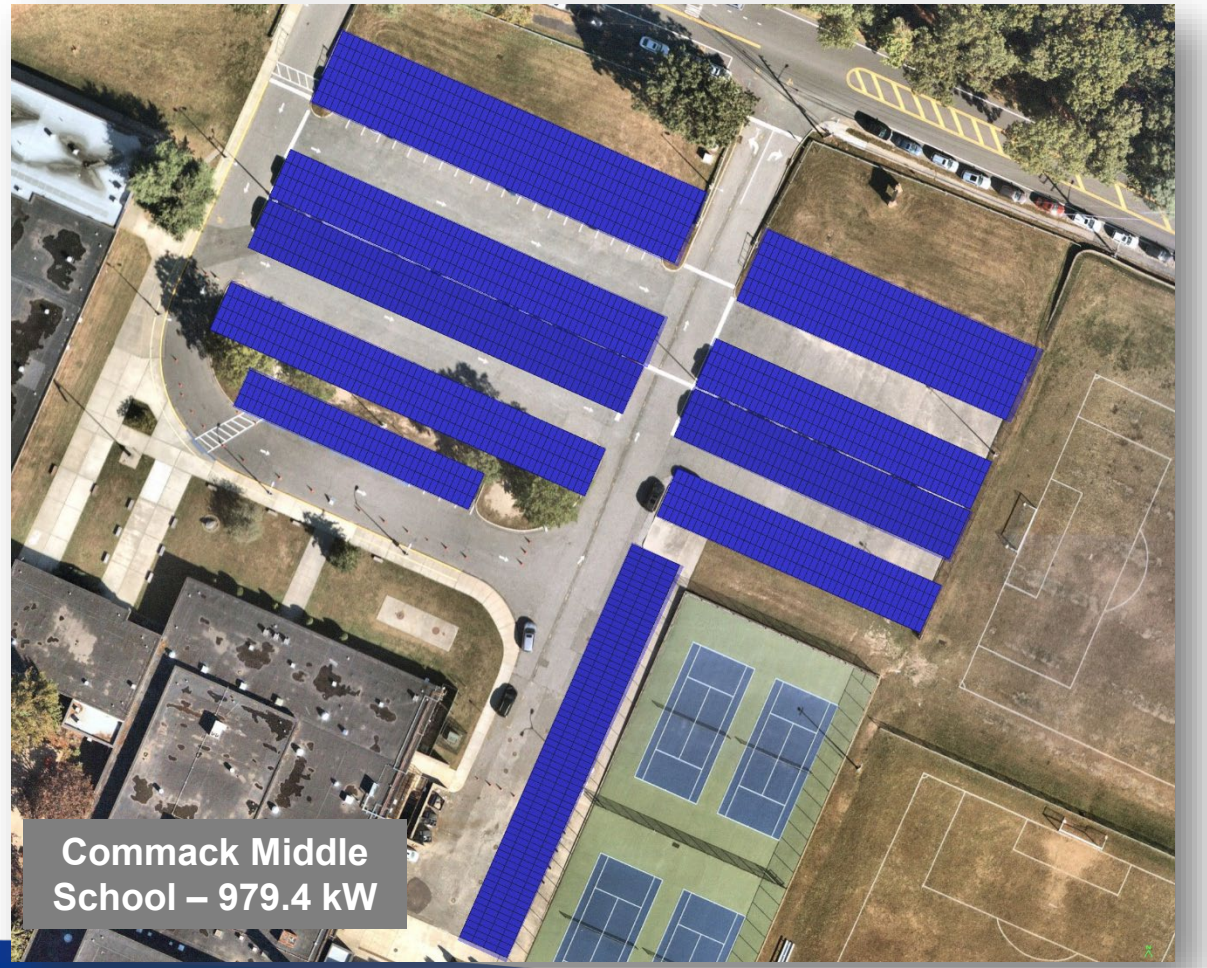
- RH & IH Roof Replacement Compete
- CHS Roof Replacement in Progress
- Interior & Exterior Lighting Upgrades in Progress
- BMS Upgrades in Progress
- RH & NR Boiler Replacement Complete
- Burr & MSIS Co-generation Installation in Progress
- IH, RH &NR Solar Installation in Progress

$15M OF INFRASTRUCTURE AND ENERGY EFFICIENCY PROJECTS WITH NO COST TO TAXPAYERS

Additional Energy Conservation Measures Change Order Proposal

Renewable Energy – Photovoltaic Electric Generation (Solar Canopy / Carport System)

Additional Energy Conservation Measures
Renewable Energy – Photovoltaic Electric Generation



Smithtown West Campus

Electrical Kilowatt-Hour (kWh) Energy Savings

Upon completion of rooftop and carport photovoltaic installations we will produce enough solar energy to run all 8 schools.*

- Baseline kWh Consumption – 7.5M
- EPC kWh Savings – 6M
- Districtwide kWh reduction – 80.3%

**This will be accurate until such time as 2019 Bond air-conditioning in large venues is installed. However, at that time we will do additional photovoltaic installations.*

Next Steps

- Finalize PSE&G Interconnection Costing
- February 2020 – Present Final Cost and Savings
- March 12th 2020 – Present Change Order for Adoption
- Pending Approval Begin Installation Summer 2020
- Fall 2020 – All 8 Schools “Off The Grid”

Questions from the Board of Education?

Click here for a short drone video

Capital Improvement Updates

	CHS Turf Field Replacement	In-progress
	CHS Security Vestibule Installation	Anticipated Completion Winter 2020
	CHS Track Replacement	Summer 2020
	CHS Site Restoration	Summer 2020

2019 Bond Update

Soil borings complete

NR, Burr, CHS, CMS & IH

These are required to obtain geotechnical report to determine site conditions prior to any construction. Projects include NR Paving, Burr Paving, CHS softball and baseball fields, CMS turf field install & IH paving.

Environmental testing in progress (asbestos & PCB testing)

NR Paving & Burr Paving,

CHS Softball & Baseball Fields

CMS Turf Field Install & IH Paving

CHS & CMS Science Lab Renovations

All Restroom Renovations (All 8 Schools)

Roof Projects Sag, LA, CR, OF & CMS

Window Projects At LA, CR, OF & SL

Site mapping, utility mark-outs & surveying in progress

NR Paving, Burr Paving, CHS Softball and Baseball Fields, CMS Turf Field Install & IH Paving

Questions from the Board of Education?

Instructional Technology Department: State-of-the-District

Instructional Technology Update

CMS & CHS Technology Education Department Highlights

Smart Schools Deployment at CHS

Infrastructure Update

Infrastructure Development

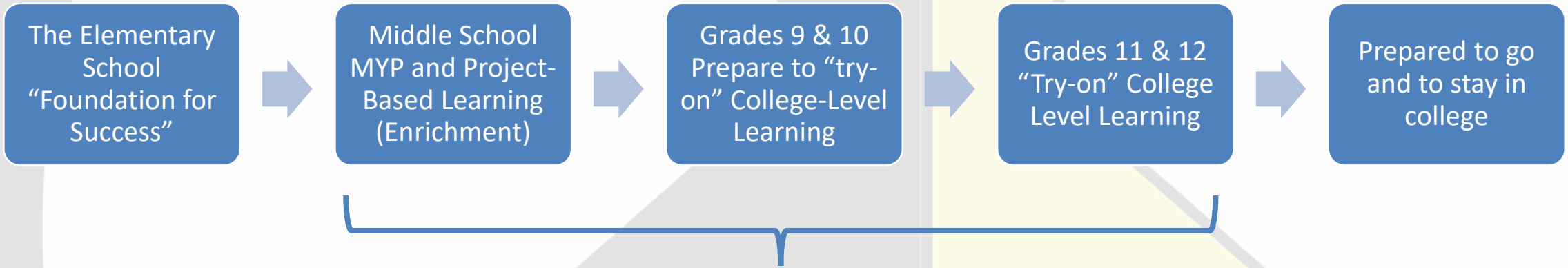
Cyber Security Update

Device Inventory and Deployment

BOCES Multi-Year Lease Agreement

Short-Term and Long-Term Planning

THE EDUCATIONAL PROGRAM CONTINUUM



The Secondary School Program:
A **Balanced** Educational Program that provides each student with access and opportunity. At the core of the success of this program is Project-Based Learning.

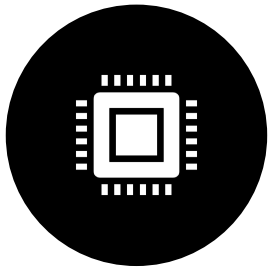
Students learning through **PBL retain content longer and have a deeper understanding** of what they are learning.
(Penuel & Means, 2000; Stepien, Gallagher & Workman, 1993)

In specific content areas, **PBL has been shown to be more effective than traditional methods** for teaching math, economics, language, science, and other disciplines.
(Beckett & Miller, 2006; Boaler, 2002; Finkelstein et al., 2010; Greier et al., 2008; Mergendoller, Maxwell, & Bellisimo, 2006)

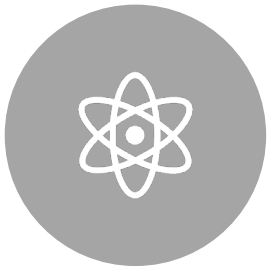
Commack Middle School Design Technology

Mr. John Murray
Design Technology Education Lead Teacher

We Offer Enrichment, Access and Opportunity



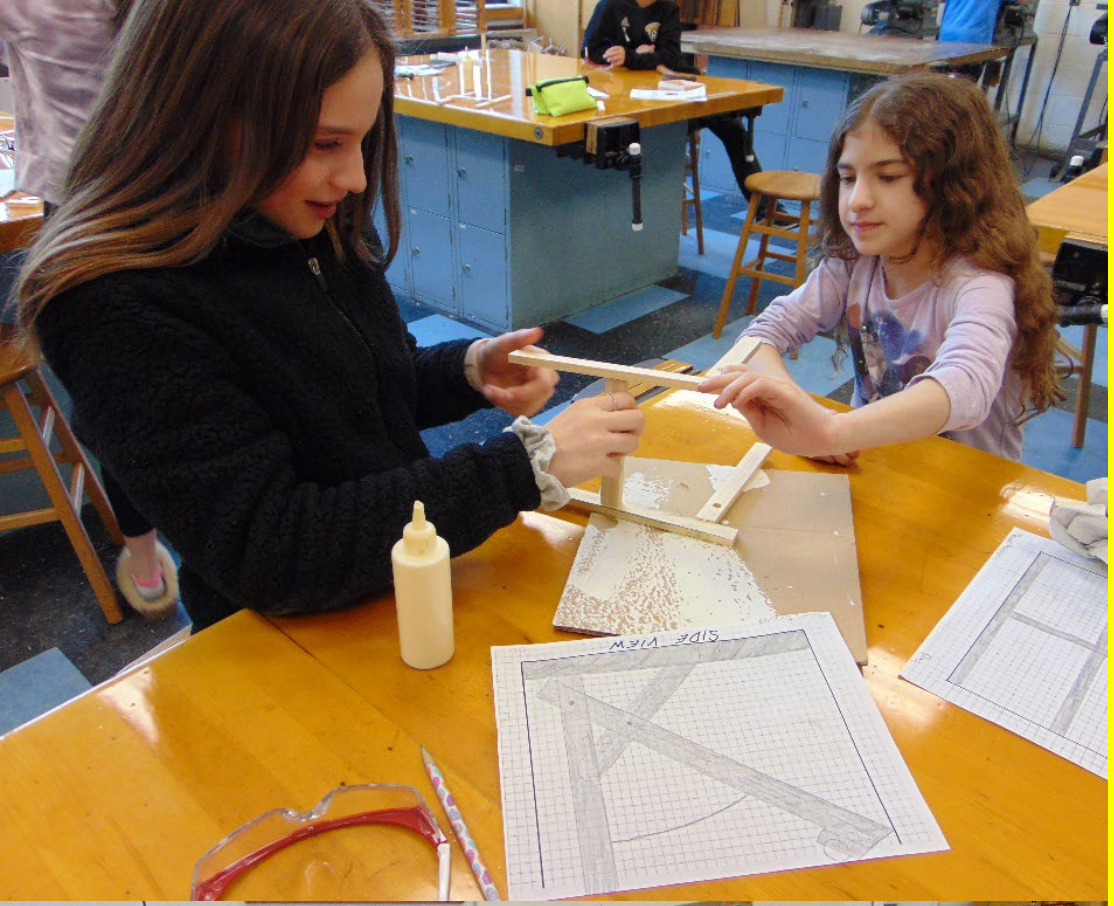
6th Grade: Innovations in Technology or Traditional Technology

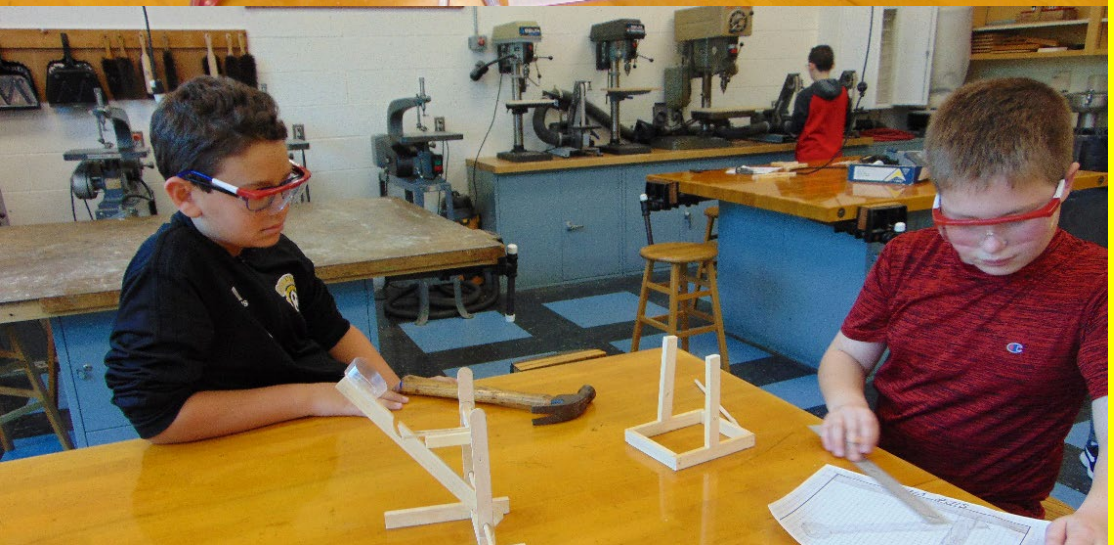


7th Grade: Principles of Physics and Engineering through Transportation

8th Grade: VEX and Clock Design

7th & 8th Grade Enrichment: Building and Beyond and STEM



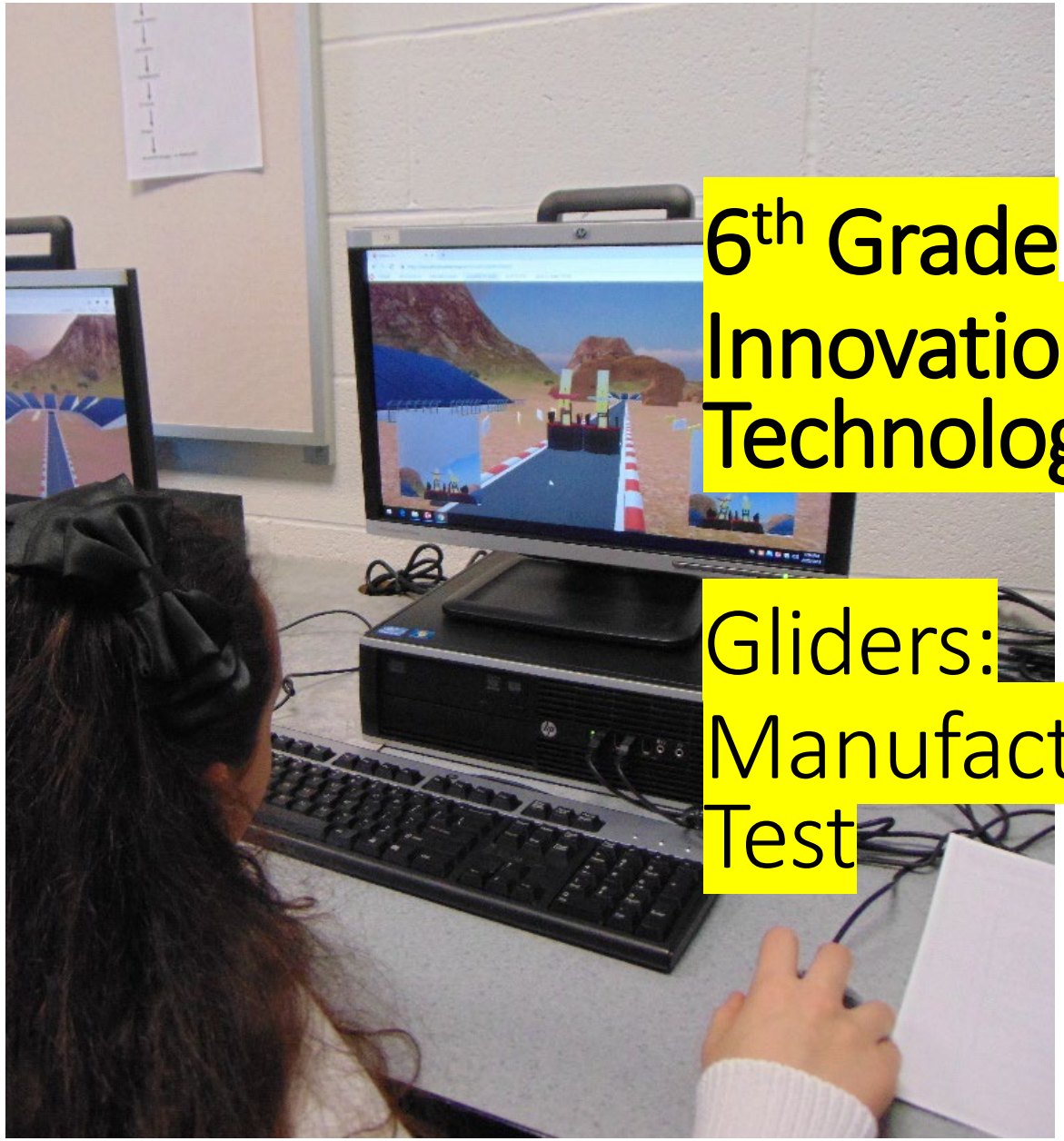


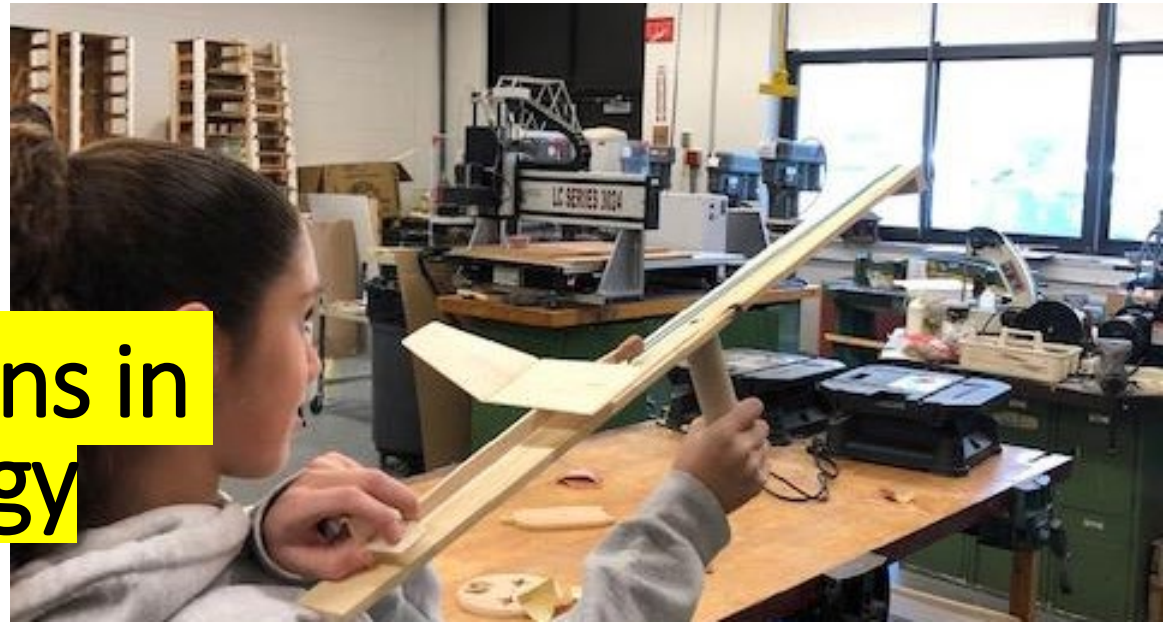
6th Grade Innovations in Technology

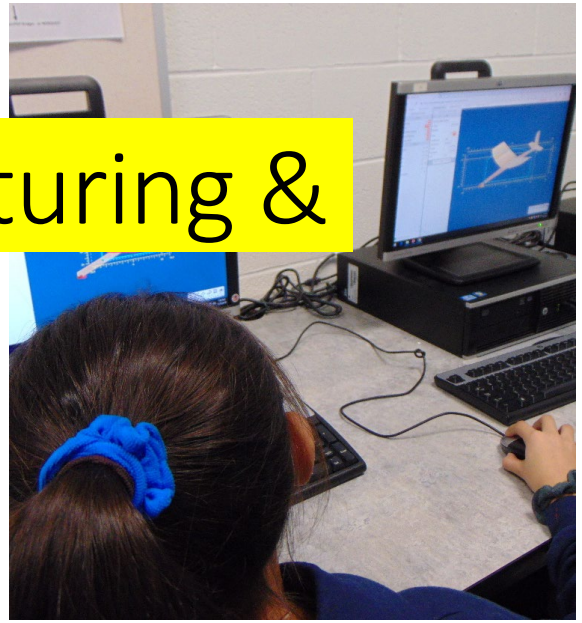
Catapults: Design & Manufacturing

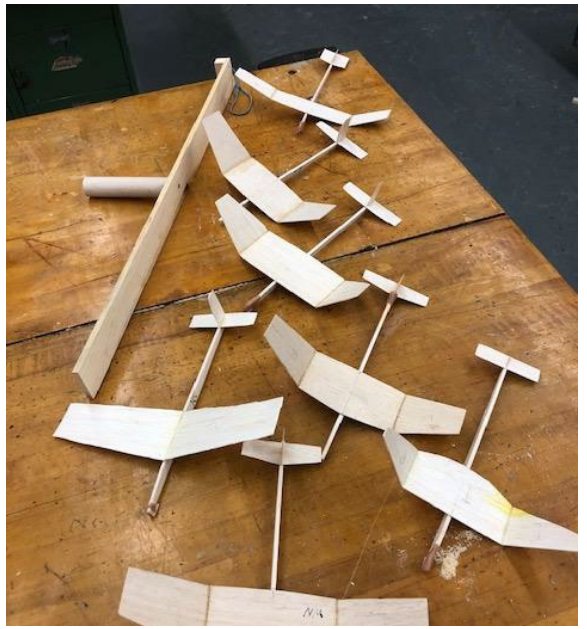
6th Grade Innovations in Technology

Gliders: Manufacturing & Test



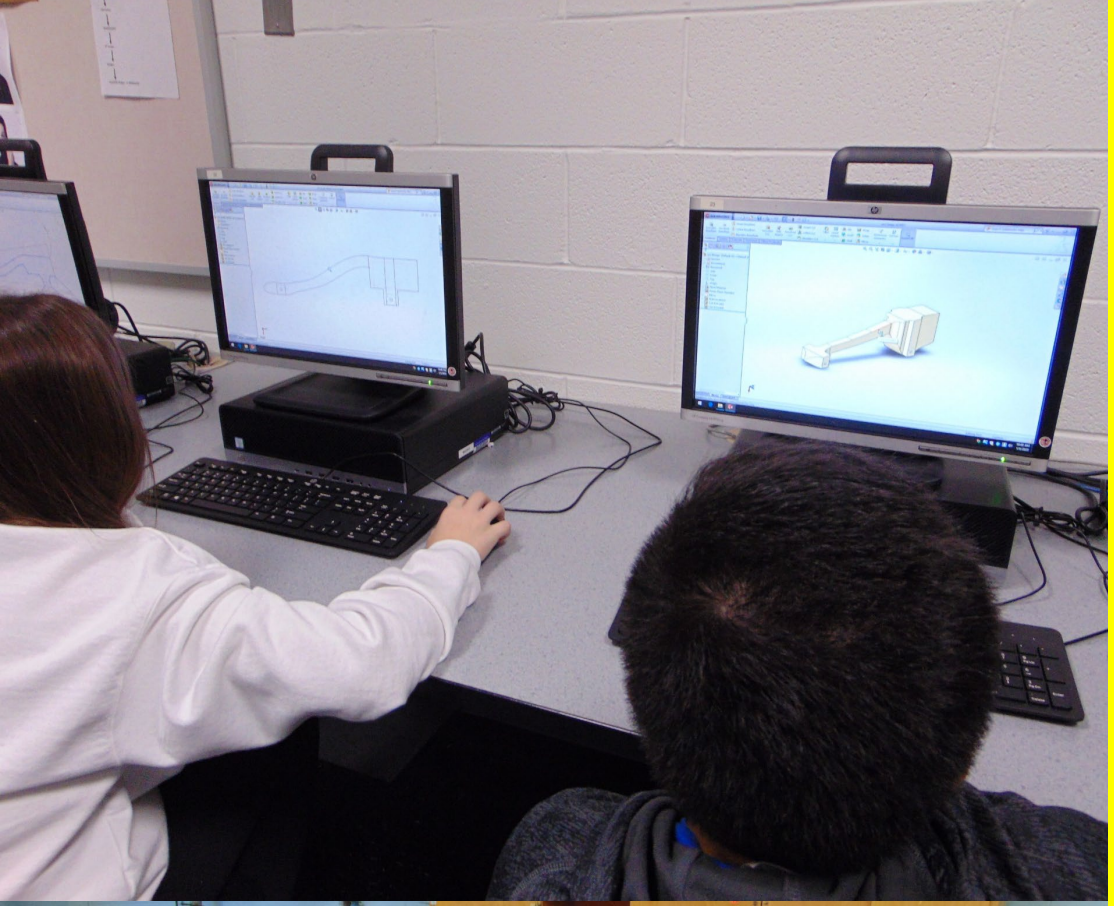






6th Grade
Innovations in Technology

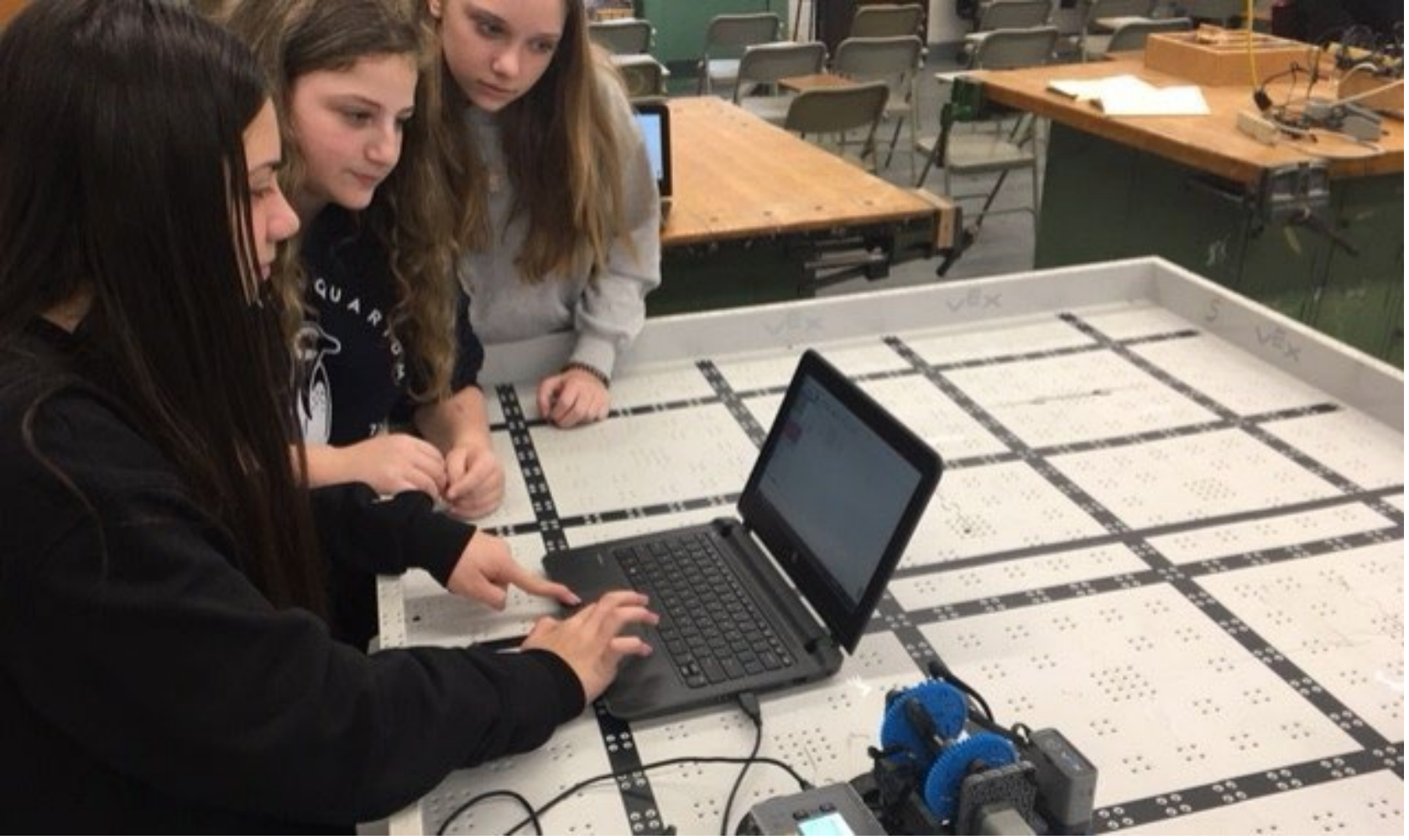
Key Chains: Manufacturing

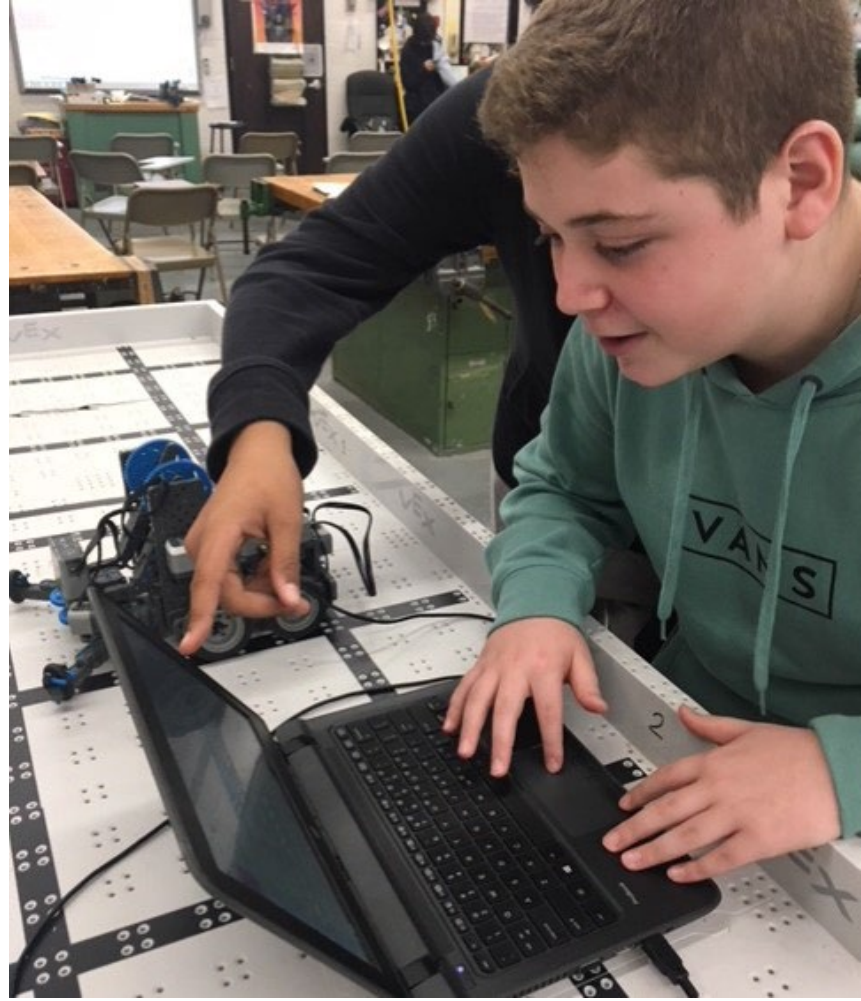


7th Grade

Principles of Physics and Engineering through Transportation

co2 Cars: Design and Manufacturing





8th Grade
VEX and Clock Design

Vex Robotics: Programming and Application

8th Grade

VEX and Clock Design

Clock Design and Manufacture

Grades 7 and 8

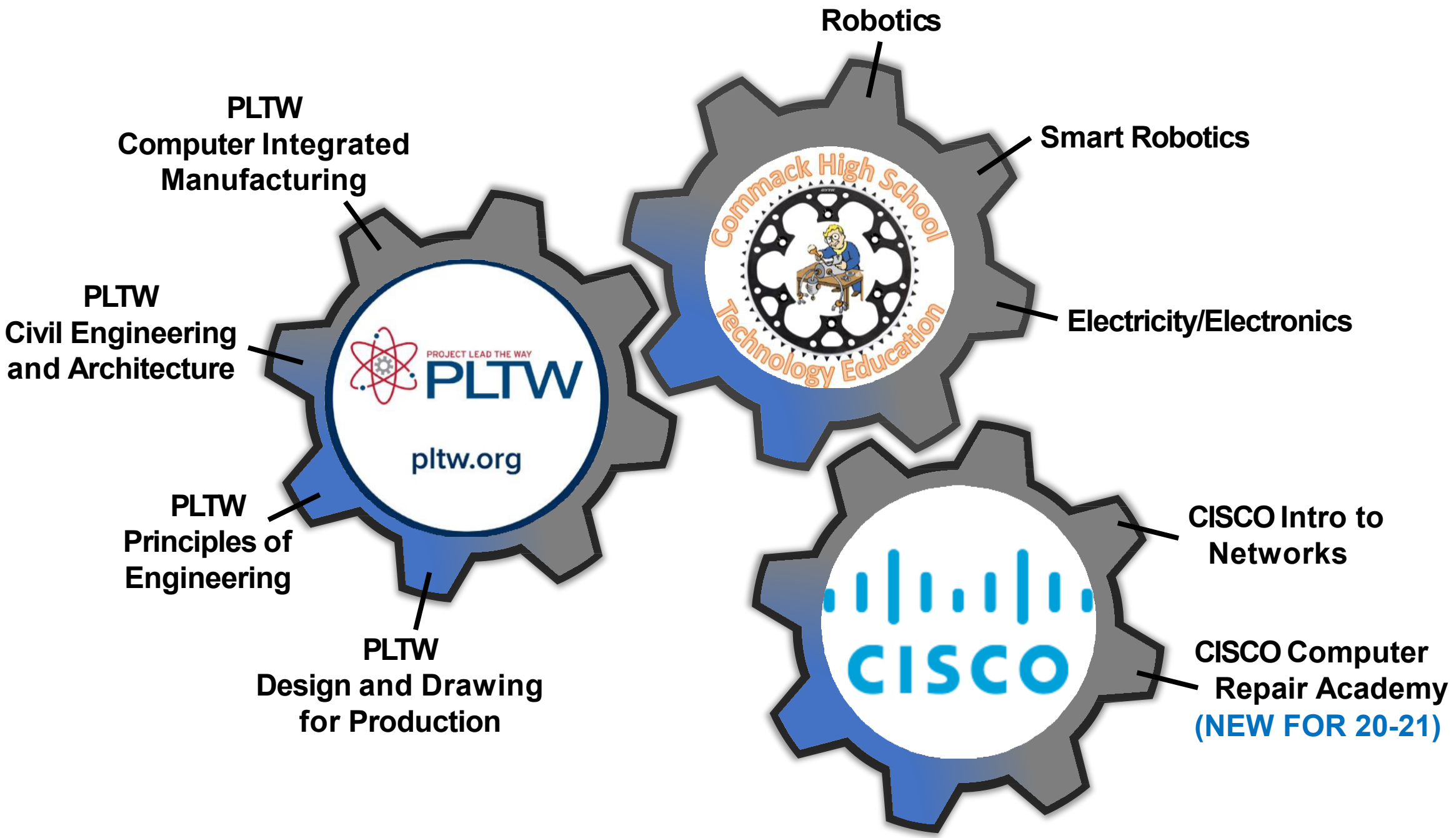
Building and Beyond:

Understanding Design through Manufacturing

Questions from the Board of Education?

Commack High School: **Technology Education Department Highlights**

Mr. Thomas Shea
Technology Education Teacher


Robotics
Smart Robotics
Electricity/Electronics
CISCO Intro to Networks
CISCO Computer Repair Academy
(NEW FOR 20-21)
PLTW Computer Integrated Manufacturing
PLTW Civil Engineering and Architecture
PLTW Principles of Engineering
PLTW Design and Drawing for Production
Commack High School Technology Education
PROJECT LEAD THE WAY
PLTW
pltw.org
CISCO

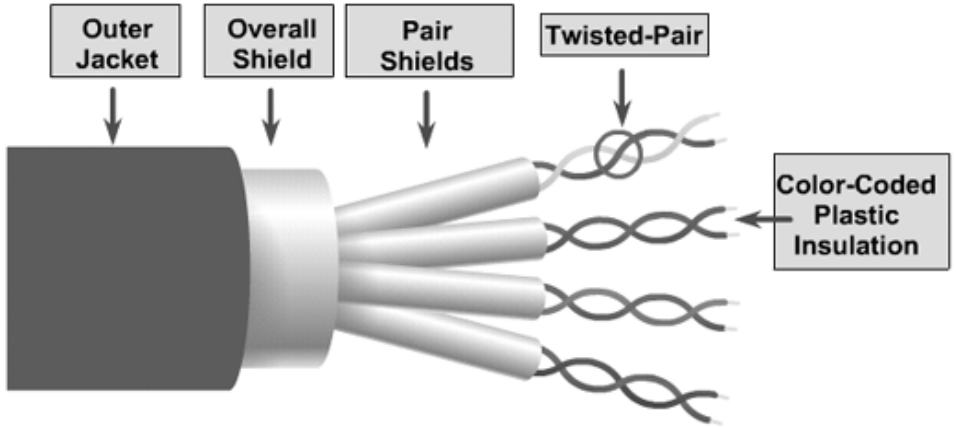
Cisco Networking Academy – Switching, Routing, Network Essentials

Completion of the course permits seating for Cisco Certified Technician (CCT) Exam

"We attain field experience inside the classroom."

How is a network cable constructed?

- Students are taught network cabling principles
- Students construct their own cables using field technician equipment and methodologies

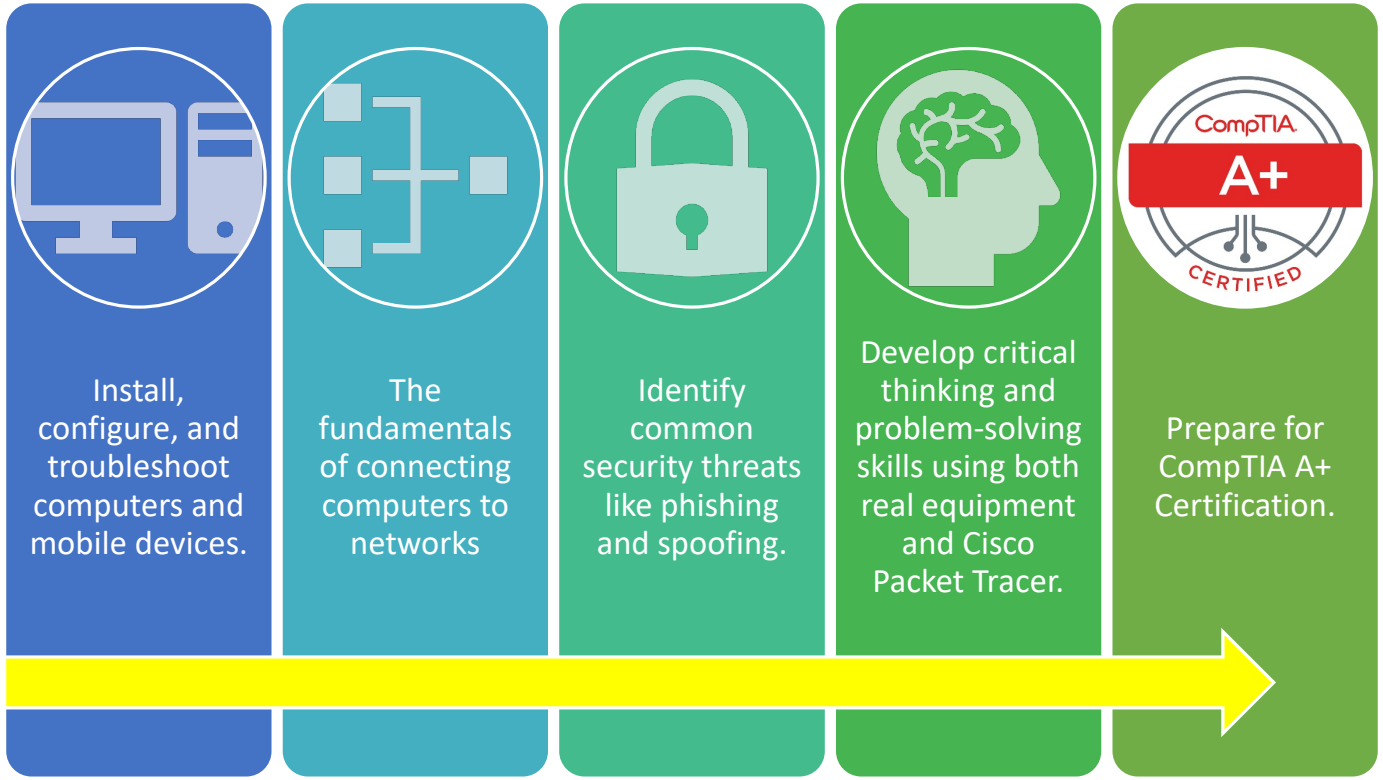


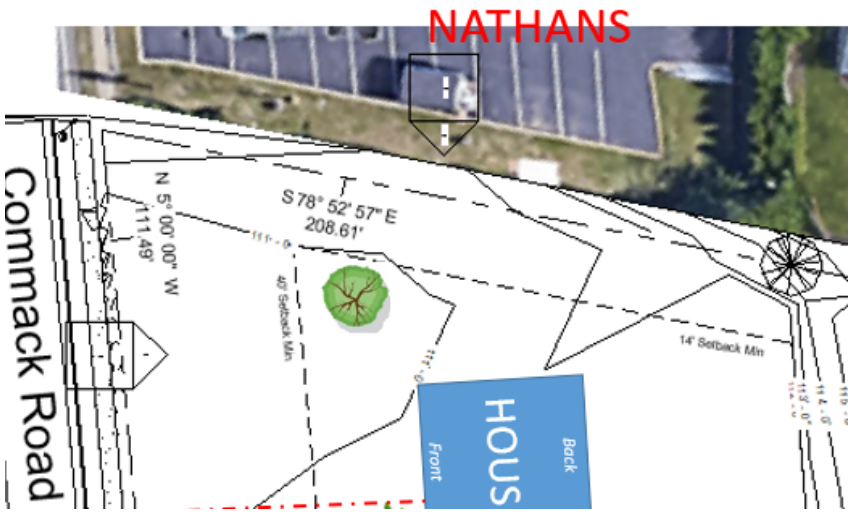
New Offering Fall 2020

Cisco Computer Repair Academy

Completion of the course permits seating for CompTIA A+ Certification

Computer Repair Academy covers the career skills needed for entry-level IT jobs





PLTW – Civil Engineering and Architecture

"We bring design principles to our students' doorsteps."

<u>Do we have enough water pressure at our proposed construction site?</u>

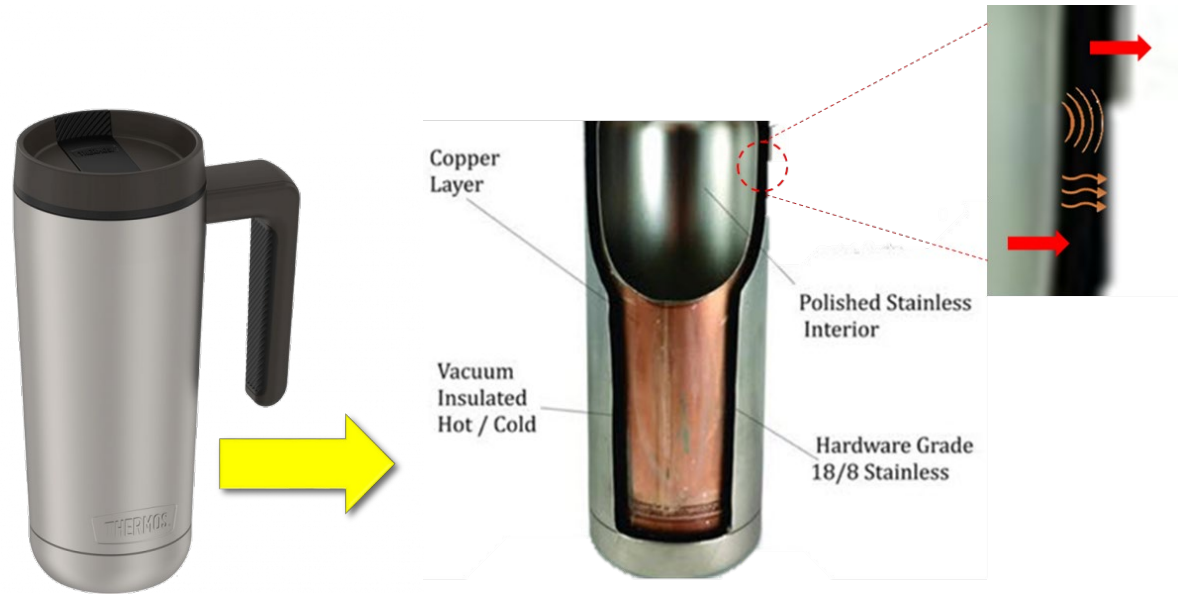
- ❑ Use Google Earth to gather real life data
- ❑ Perform analyses based upon SCWA reports and engineering principles

PLTW – Principles of Engineering

"Do equations approximate the world, or does the world approximate equations?"

Anatomy of an Insulated Mug

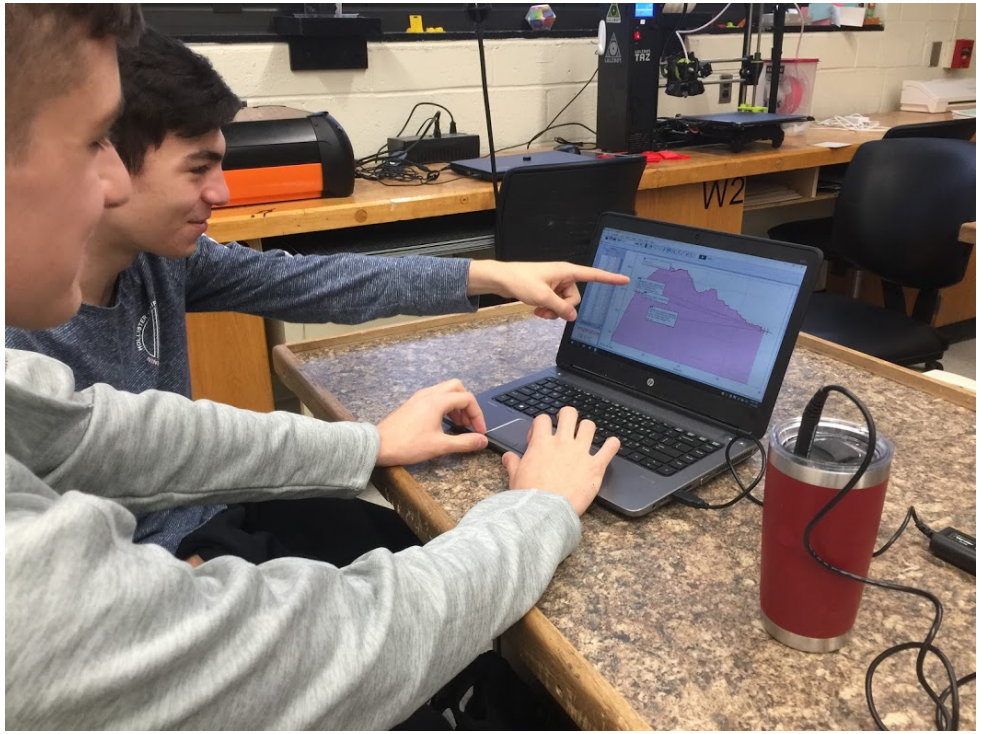
- Perform analyses to characterize the performance
- Perform an experiment measuring the performance



Inner Wall Conduction — Outer Wall Conduction

$$Q_{total} = \frac{k_i A_i}{\Delta x_i} + \mathrm{h}A_i + \epsilon\sigma A_i\left(T_i^4 - T_o^4\right) + \frac{k_o A_o}{\Delta x_o}$$

Air Gap Convection — Air Gap Radiation



PLTW – Computer Integrated Manufacturing

"Engineering is conceptual emulation not duplication."

The Cup Crusher

- Open design challenge
- Collaborative project
- All designs were unique
- Involved mechanical design as well as coding

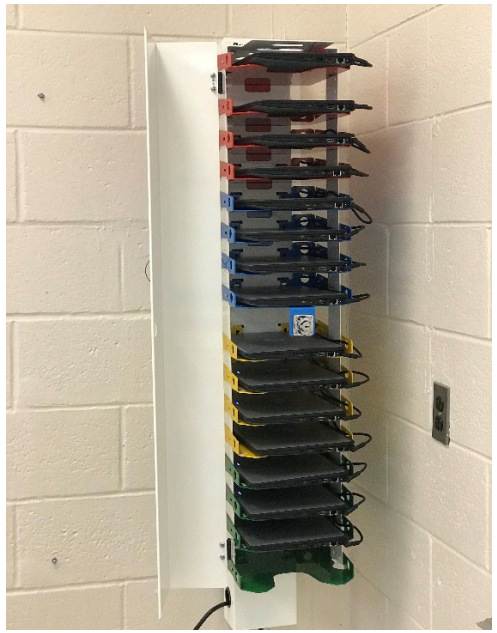
Robot C Code

```
*/
task e_stop()/*start estop*/
{
  while(1==1) /*loop forever*/
  {
    if(SensorValue(Bump)==1) /*if the bump swith is pressed stop the program*/
    {
      stopAllTasks();
    }
    wait1Msec(1);/*wait statment to allow time for the above lines to work*/
  }
}
task main()/*start the program*/

{
while(1==1)/*loop forever*/
  {
    startMotor(port2, -127);/*start motor backwards full power*/
    startTask(e_stop);/*initilize the estop prgram*/
    untilBump(Bump1);/*wait untill bump is pressed*/

      if(SensorValue(LineFollower1) > 125)/*loop untill the sensor value is reached while button is pressed*/
  {
     if(SensorValue(LineFollower1) < 165)
  {
     startMotor(Wire393Motor,127);/*start motor foward full power*/
     wait(1);/*wait 1 second*/
     untilTouch(Limit);/*wait untill the limit is pressed and send motor in other direction t full power*/
     startMotor(Wire393Motor,-127);
     wait(15);/*wait 15 seconds*/
     stopMotor(Wire393Motor);/*stop the motor*/
     startMotor(port2, 50);/*use servo to kicout cup*/
     wait(2);/*wait 2 seconds*/
```

Questions from the Board of Education?

Commack High School:
Growing Accessibility of Technology to Enhance Teaching and Learning

Mr. Eric Biagi
Lead Teacher of Instructional Technology
Social Studies Teacher

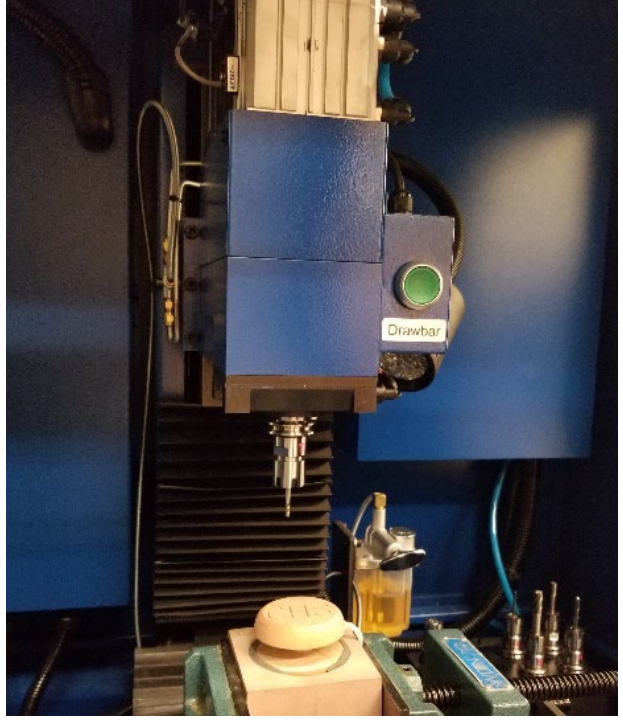


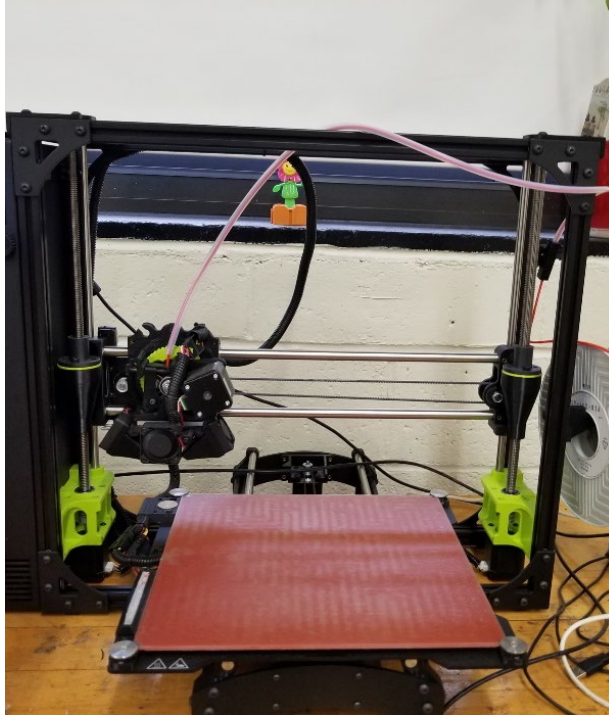
Enhancing Teaching and Learning with Greater Access to Instructional Technology!

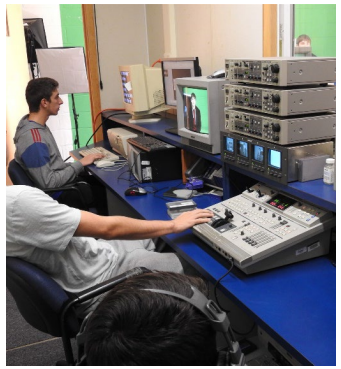
- ✓**Smart Schools** - Commack High School deployed 1,260 laptop computers in 42 instructional rooms and in our multi-use technology room that students will have access to throughout each school year.
- ✓Video Conference capabilities for virtual field trips to museums, laboratories and schools throughout the world
- ✓Collaboration through sharing platforms and virtual communities

Access to (a lot more) Instructional Technology at Commack High School

TouchIT Interactive Displays	Smart Boards in Every Instructional Room	Multi-use Video Conference Lab
Mac Lab for Music Production	Full Audio and Television Recording Studios	Robotics Lab
Student Computer Labs	CISCO Programming Lab	Android Tablets to Support PLTW Curriculum
WACOM Art Design Tablets	Digital Signage Displays	3D Printing and Laser Woodcutting







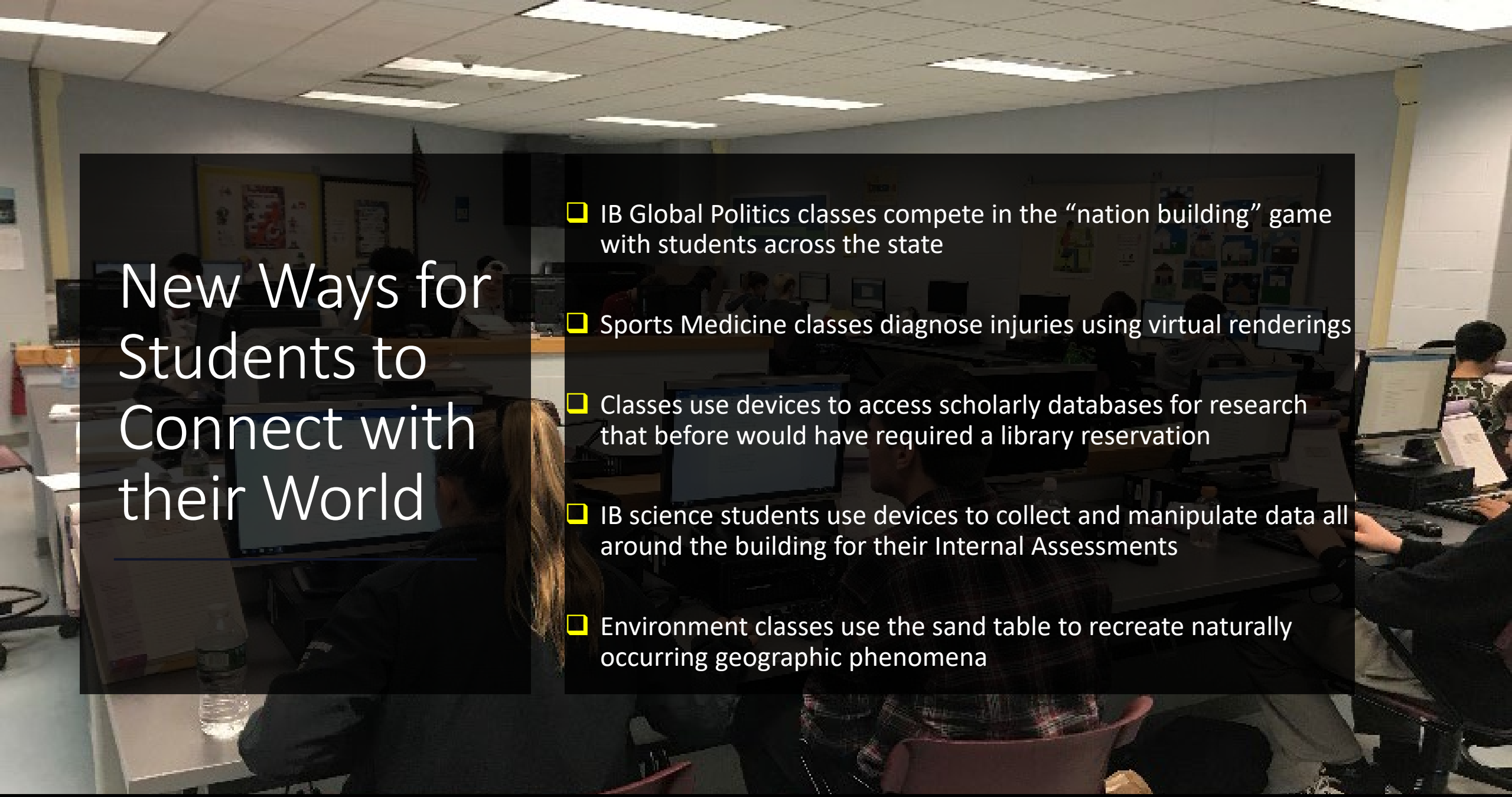
Instructional Technology Travels across the Curriculum

Microsoft Office 365

Arts and the Humanities

STEM

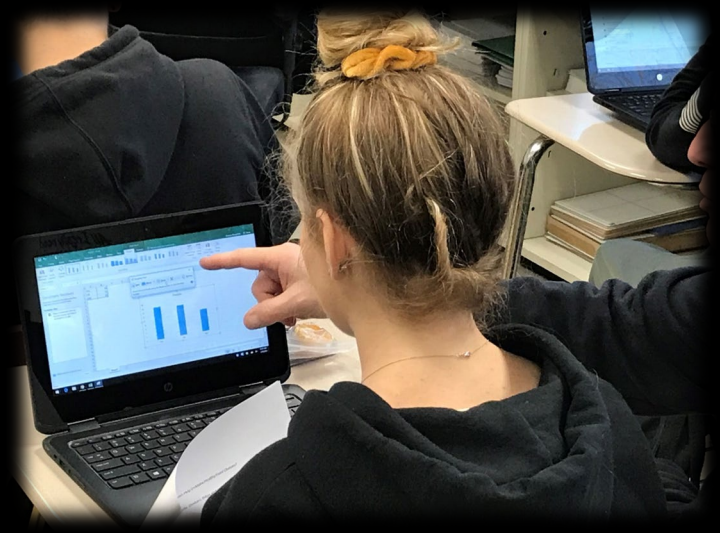
And, More!



New Ways for Students to Connect with their World

- IB Global Politics classes compete in the “nation building” game with students across the state
- Sports Medicine classes diagnose injuries using virtual renderings
- Classes use devices to access scholarly databases for research that before would have required a library reservation
- IB science students use devices to collect and manipulate data all around the building for their Internal Assessments
- Environment classes use the sand table to recreate naturally occurring geographic phenomena

What Teachers Say...



"Language and Culture classes can take personalized 360º tours through Latin America."

"Utilizing the interactive software with some of the AP courses has been a win!"

"The use of virtual field trips has benefited our students."

"Utilizing the devices with the checkpoints allows for an easier mastery approach."

"Student presentations are better because they have time in class to work on them."

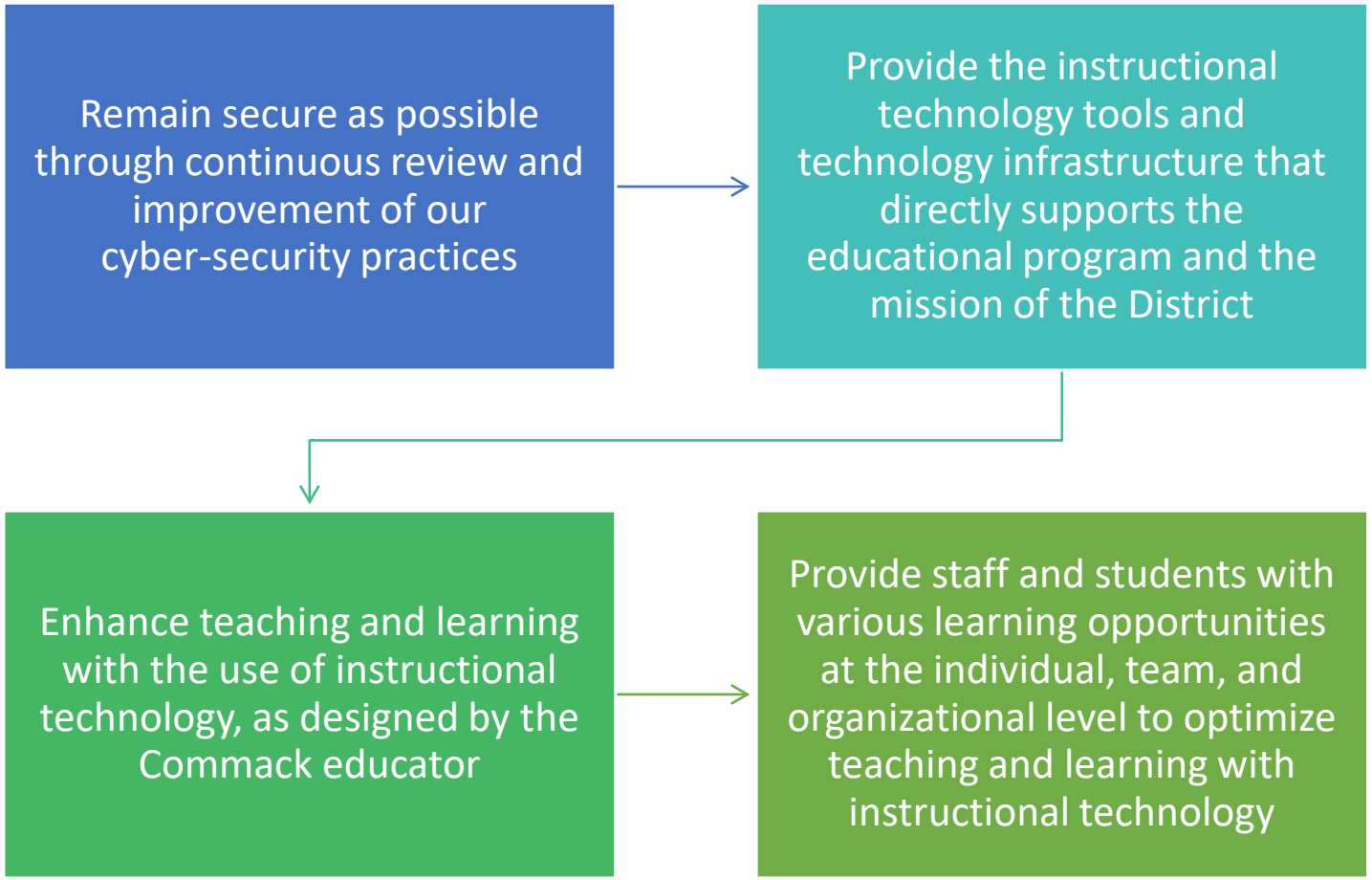
Questions from the Board of Education?

District-Wide Technology Infrastructure, Inventory, and Cyber-Security

JOSE SANTIAGO

ADMINISTRATIVE ASSOCIATE FOR INSTRUCTIONAL TECHNOLOGY

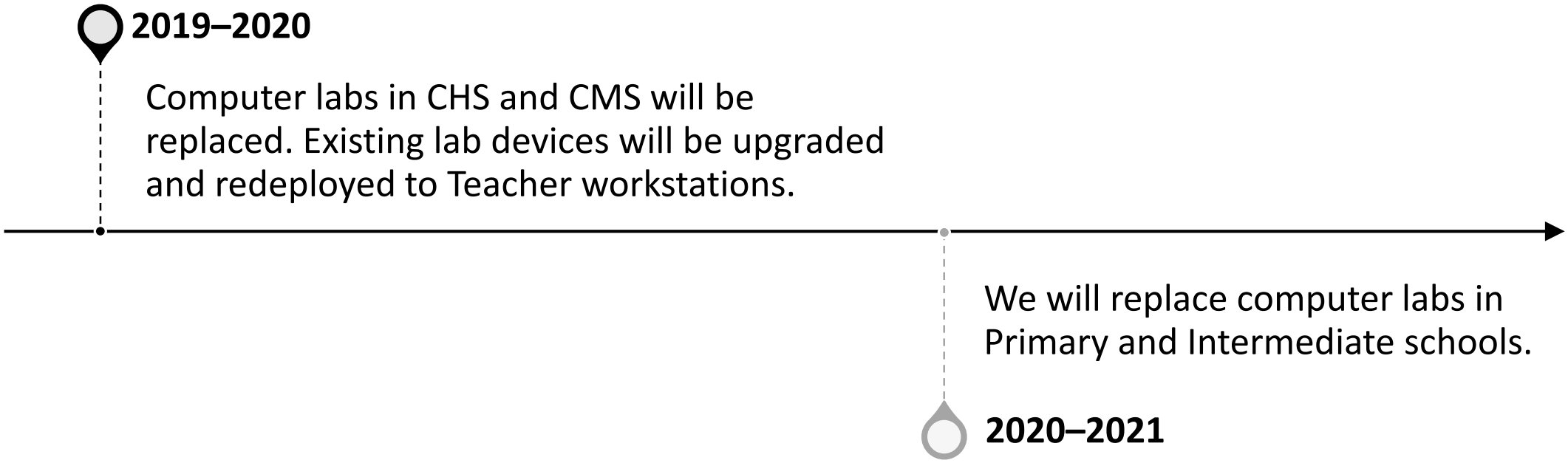
Instructional Technology Department: Guiding Principles



Continuing District-Wide Infrastructure Enhancement and Development

- Server Upgrades
- Upgrades to Interior Fiber Optic Connections for Increased Speeds (Bond)
- Update Various Core Network Switches (CHS, CMS, Burr, Sawmill)
- Device Management and Inventory Tools

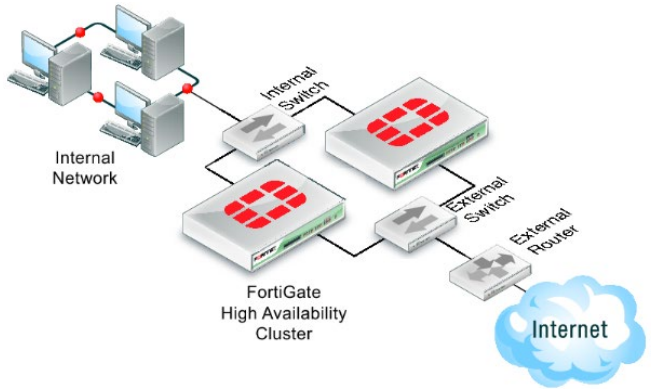
BOCES Multi-Year Technology Lease



By using the BOCES Lease Program we pay only 50 cents on the dollar. Our machines are half price.

FORTINET

Microsoft



Cyber-Security: Continuous Review and Improvement

- Evaluating Current Anti-virus Solution
- Ongoing Maintenance And Improvements To Fortinet Firewall
- Working With Partners To Ensure Network Efficiency And Security
- Staff Cyber-security Training (Continued)

A **GROWING** Device Inventory

As of January 2020, the Instructional Technology Department manages **7,803** "devices" daily.
By this time next year, it is anticipated that this department will manage nearly **10,000*** "devices" daily.

*Additional devices may be added!

		Current	To Be Added	Total
Non-Instructional	"Office" Computers	467	-	467
Instructional	iPads (Elementary and Special Education)	224	500	724
	Classroom-PC	1,079	-	1,079
	LCD-TV	18	-	18
	Classroom-Mac	23	-	23
	Library	138	-	138
	Classroom Laptops (CHS)	1,230	-	1,230
	Classroom Laptops (CMS)	0	1,250	1,250
	Labs	721	-	721
	COWs-PC	881	-	881
	Chromebooks	534	-	534
District-Wide Total		**5,315**	**1,750**	**7,065**

	Total
Printers	595
Interactive Whiteboards	474
Projectors	473
Servers	26
Switches	69
Wireless Access Points	478
Cameras	331
Door Access	42
Total "Other" Devices	**2,488**

Other

Short-Term and Long-Term Instructional Technology Planning

Short-Term

- Cyber security
  - Network hardening
- Working with our partners to ensure best practices are in place
- BOCES lease program
  - Computer labs (CHS, CMS)
- Professional development
  - Technology coaches

Long-Term

- Budgeting for sustainability (additional/increase to BOCES lease program)
- Outfitting classrooms not funded by smart schools
- Curriculum development
- Ongoing professional development
- Continuous review and improvement

Questions from the Board of Education?

Committee Reports

Legislative Advocacy Committee Updates

The last Legislative Advocacy Meeting was held on Thursday, December 12, 2019.

The committee continues to work on the District's platform which will be utilized at Lobby Day in Albany scheduled for Tuesday, March 3, 2020.

The platform items include position statements on:

- School Funding
- School Safety
- Vaping
- Alternate Pathways to Graduation
- Mental Health

Upcoming Actions: The next Legislative Advocacy Committee Meeting is scheduled for Monday, January 13, 2020.

Vaping Task Force Update

Update: Next Meeting February 4, 2020

Coming soon: presentations for Commack Middle School and High School parents.

Task Force Members:

Dr. Donald A. James Superintendent of Schools

Amy J. Ryan Assistant Superintendent for CIA

Jarrett Behar Board of Education

Jordan Cox Executive Director of Instructional Services

Leslie Boritz Principal Commack High School

Michael Larson Principal Commack Middle School

Andrea Allen Assistant Principal, Commack High School

Evelyn Cárdenas Assistant Principal, Commack Middle School

Wendy Frankonis Teacher, Commack High School

Kimberly Radziul Social Worker, Commack High School

Jeff DiLorenzo Counselor, Commack Middle School

Christine Wright Nurse

Christopher Guiffre Security

Five Parent Participants

Student Participants

Strategic Planning Commission

Next meeting: January 29, 2020 4:30 p.m.

Topic: The student success committee will provide an update on focus group conversations

Focus Group Conversations Calendar
Community, Faculty, Student Participation

Group	Date	Location	Time
CHS PTA Exec. Board	January 14, 2020	CHS	8:00 A.M.
Administrative Council	January 14, 2020	Hubbs	10:00 A.M.
Office of Student Life	January 14, 2020	CHS	2:30 P.M.
CMS Lead Teachers	January 22, 2020	CMS	8:00 A.M.
CMS Students	January 22, 2020	CMS	9:30 A.M.
Sawmill Staff	January 23, 2020	Sawmill	8:15 A.M.
Sawmill Students	January 23, 2020	Sawmill	9:00 A.M.
CHS Lead Teachers	January 28, 2020	CHS	7:30 A.M.
CHS Students	January 28, 2020	CHS	2:30 P.M.
Burr Staff	January 29, 2020	Burr	8:30 A.M.
Burr Students	January 29, 2020	Burr	9:15 A.M.
CHS Students	February 12, 2020	CHS	2:30 P.M.
IH/NR Staff	February 27, 2020	Indian Hollow	8:40 A.M.
RH/WP Staff	March 4, 2020	Rolling Hills	8:40 A.M.