



The Future of Technology at Duanesburg Central School

By Joe O'Neill

Where we are

- Elementary School currently has 2 labs that can be scheduled by teachers
- High School has 1 computer lab and 2 sets of 15 laptops that can be used by all classes
- There are 3 Project Lead The Way labs in the High School

Where we want to be

- ~~• Elementary School currently has 2 labs that can be scheduled by teachers~~
- Elementary School would keep 1 lab for scheduled use
- ~~• High School has 1 computer lab and 2 sets of 15 laptops that can be used by all classes~~
- High School would no longer have any traditional computer labs, only PLTW labs
- ~~• There are 3 Project Lead The Way labs in the High School~~
- Classrooms or students in both the ES and HS would be outfitted with Chromebooks
- Grades K-2 would have access to more “tactile computing” (ie. tablets and touchscreens)

The cost to get us there

Required

Network upgrade involving core switch component replacement, network cabling, and wireless access points - ~\$200k

Options

1. Enough Chromebooks to outfit each classroom (K-12) with their own cart of 26. The devices stay in school and are charged in the cart each night - ~\$258k
2. One Chromebook (tablet for K-2) per student and the devices go home with the student for use at home (broadband permitting) and to be charged - ~\$190k
3. Focus on outfitting a smaller group of grades (ie. 8-12) with Chromebooks. Keep existing labs in place as well as provide some tablets for K-2 classrooms to be used in group settings - ~\$85k

Thank you for your time!

Computer Technology Baseline Cost

Below are a list of existing computer labs located throughout the district. Each lab has at least 24 computers in it with the exception of the High School Room 108 PLTW lab which has 14 computers. Please note that the costs totaled below do not include standard teacher workstations, servers, network equipment, or various other computers and devices in different areas of the district.

Elementary School Computer Lab by Library - \$24k

Elementary School Computer Lab in 1st Grade Wing - \$24k

High School Room 108 PLTW lab & 2 PLTW Teacher laptops - \$24k

High School Room 101 PLTW lab & 1 PLTW Teacher laptop - \$37k

High School Business Computer Lab - \$27k

High School Room 203 Computer Lab - \$27k

High School Library Computer Lab - \$27k

High School Laptop Carts - \$30k

Total = \$220k with a 4-5 year alternating replacement lifecycle

Computers for these rooms have traditionally been purchased on an installment plan through BOCES and paid for over the course of 3 or 4 years. It is common to start one IP purchase a year or two after another to have two consecutive purchases with e-rate returns coming back each year to help offset the cost. All other technology purchases are typically made from the \$15k-\$20k annual computer hardware budget.

The line items in red are costs that would be replaced by scenarios 1-3 from below. This would result in \$108k of funding that could be reassigned for a one-to-one initiative. Scenario 4 would result in \$57k of funding that would be available due to only removing the High School Laptop Carts and High School Business Lab.

Through the Smart Schools Bond, Duanesburg Central School's proposed allocation is \$661,917. Necessary network upgrades are estimated to be approximately \$200k, leaving \$461,917 available for technology, rural broadband expansion, Pre-K programs, and security/surveillance upgrades.

Scenario 1 Cost: \$190k (Difference of \$78k vs current technology Total= \$302k)

Every student in grades K-2 receives a tablet and every student in grades 3-12 receives a Chromebook. Each student is responsible for their own device and must take it home to charge it each evening. All computer labs would be removed except for 1 in the elementary and 1 in the HS (PLTW labs remain unaffected) and continue on their existing upgrade schedule.

Pros:

Lower cost compared to carts for each classroom

Less devices to maintain

Students with access to Wi-Fi at home or elsewhere will be able to use Chromebook with online apps

Cons:

Devices are more prone to damage due to being transported daily or theft from outside persons

Students without access to Wi-Fi at home or elsewhere become the "have nots"

Scenario 2 Cost: \$165k (Difference of \$53k vs current technology Total= \$277k)

All students in grades K-2 have access to a set of tablets in each of their classrooms, but they do not leave the room. All students in grades 3-12 have their own Chromebook that they are responsible for. All computer labs would be removed except for 1 in the elementary and 1 in the HS (PLTW labs remain unaffected) and continue on their existing upgrade schedule.

Pros & Cons: Same as above for grades 3-12 with the only change being that students in K-2 are no longer responsible for their own device to take back and forth to school.

Scenario 3 Cost: \$258k (Difference of \$146k vs current technology Total= \$370k)

Each classroom in grades K-12 has a cart with 26 Chromebooks or tablets for each student in the class to use. As students go from one classroom to another, the devices stay and the students move on to use a different device in the next room. All computer labs would be removed except for 1 in the elementary and 1 in the HS (PLTW labs remain unaffected) and continue on their existing upgrade schedule.

Pros:

Devices never leave the district so there is less of a chance of damage or theft from outside persons
There is no separation of students into those with and those without Wi-Fi at home or elsewhere

Cons:

More costly to implement compared to one-to-one model
More devices to maintain
Teachers will have to be held accountable for devices in their rooms

Scenario 4 Cost: \$65k (Difference of \$8k vs current technology Total = \$228k)

A smaller group of students would be given one-to-one access to Chromebooks such as grades 9-12 that they would be responsible for taking home to charge each night. All computer labs would remain in the elementary as they are, as would the HS Library and 1 Computer Lab in the HS (PLTW labs remain unaffected) and continue on their existing upgrade schedule.

Pros:

More cost effective
Less devices to maintain

Cons:

Not as many students would have access to devices
Students without access to Wi-Fi at home or elsewhere become the “have nots”

Notes:

People in attendance of this meeting were myself, along with Chris Crowley, Jodi Marvin, Andrea Conover, Mara Burns, Kent Sanders, Tina Gamache, and Christina Loukides.

The majority of attendees showed interest in removal of most ES and HS labs along with the implementation of Scenario 3.

I advocated for a smaller initial deployment to ensure success with using these devices in our district. Other participants were receptive to this idea.

Chris will be reaching out to see if the district will be able to rollover funding in a separate budget line item from year to year in order to pay for the replacement of Chromebooks every 4 years.

There was some interest in implementing a Pre-K program, but more research needs to be done in order to see if this is an option the district can afford.