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# TECHNOLOGY

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## SCHOOL REOPENING TOOLKIT: TECHNOLOGY

This toolkit highlights the important role technology may play in daily instruction, whether taking place in the school building or in a distance learning environment. Schools may leverage this opportunity to further build on their instructional technology strategies, offering students and teachers additional blended learning experiences that aim to bolster familiarity in using these tools to further promote academic progress. In order to achieve those goals, however, districts and schools need to first survey the capacity and needs of their students and staff, both in the building and at home, to ensure strategies are accessible and feasible to implement.

As districts determine approaches to instructional technology and distance learning, the department's District Technology team stands ready to assist in planning, procurement, and technical assistance supports. Please contact the team at [district.technology@tn.gov](mailto:district.technology@tn.gov) or by calling (800) 495-4154.

## II. Checklist

### □ **Summer Close-Out & Device Preparation**

As students return to school buildings, it is important to ensure all devices are returned and available to schools and students. If devices were loaned out, or internet connectivity devices were provided (whether directly to students or for other district-related response work), the following should be completed as the closures end.

- **Confirm Plan for Summer Use and/or Return:** School and district teams should create a plan for any intended use of district devices over the summer and how students will use and return the devices currently assigned out. The plan should account for any summer programming as well as sufficient time to collect, update, and prepare devices for redeployment.
- **Communicate:** Communicate with parents and internal teams the plan for equipment during the summer
  - Are students keeping devices all summer to continue the learning process?
  - If returning equipment during the summer, setup drop off points for students to turn equipment back in (just like pickup points).
- **Track:** Be sure to check-in all devices from all students. Check for:
  - Working condition of devices – screens, keyboards, pointing devices, battery health.
  - Was the device returned to the correct location? If devices were distributed from your school stock, was the device returned to the correct school?
- **Updates:** Make sure the devices, once returned, are ready to be redeployed in the classrooms.
  - Connect the devices to the district’s mobile device management system and install any critical security updates. If you have updated configurations in your school as part of your school reopening process, be sure those updated configurations are loaded.
  - Run malware and virus scans.
  - Clear devices of any stored information/data unique to the student use over the summer.
  - Ensure all devices are loaded with any new programs or applications to be used in the upcoming school year, including for instructional supports.

Maintenance and upkeep of those resources is critical to ensure the ability to redeploy those resources should the need arise to rapidly move to a short-term virtual learning model. Industry-standard best practices for equipment maintenance, as well as following your procedures for equipment maintenance is critical.

### □ **Survey Your Needs**

As district determines how they will deliver instruction (see [LEA Guide](#) for additional information), a district should consider the connectivity, device ratios, and technology literacy specific to the environment in a district. In addition, a district should consider the learning environments for instructional delivery, barriers that occurred in the 2019-20 school year, and ensuring access for all vulnerable student groups moving forward. While understanding the landscape of devices and connectivity both in the schools and at homes is critical to any technology strategy, the analysis of these capacities becomes even more important as districts consider their ability to both integrate blended learning supports and/or quickly pivot to virtual instructional models if needed. As demonstrated in the spring closures of school year 2019-20, strong technology capacity surveys include school site reviews, staff members' home access, and students' home access.

Many districts already employ surveys to inform technology strategies. Important questions to consider include:

#### Devices:

- What is the current device to student ratio for devices to be used in the school?
- What is the current device to teacher ratio for devices to be used in the school?
- What % of students have access to a device (and what kind) to be used in the home? Is it a personal device (if so, consider follow-up as to whether or not student would have full access to device for the purpose of distance learning or if it is a shared household device) or a school-issued device?
- What percent of staff have access to a device (and what kind) to be used in the home? Is it a personal device or school-issued device?
- What current device stock does the district have on hand to increase the rates of device-to-student and/or device-to-teacher ratios for school or home use?

#### Connectivity

- What percent of students have access to reliable internet connectivity at home?
- Does student have wireless internet (Wi-Fi) via a broadband or landline available? (Yes/No)
- If so, who is provider? (Comcast, Spectrum, AT&T, Other)
- If not, what is the barrier to obtaining? (financial, access/availability, philosophical)
- Does student have wireless service where they live? (Yes/No)
- What % of staff have access to internet connectivity at home?
- What current device stock or connectivity options does the district have available to increase the rates of connectivity for students and teachers for school or home use?

#### Technology Literacy

- What is the current level of technology literacy among students? (Will vary by grade/site/other factors)
- What is the current level of technology literacy among parents and families?
- What is the current level of technology literacy among teachers and staff?

District technology leads, teachers, school leaders, and district leaders should consider issuing surveys via emails, robo-calls or other phone-based tools available, or as part of school enrollment packets to gather information as far in advance of school opening as possible. The results of these surveys can help set realistic boundaries on the viability of various types of instructional technology strategies and may inform considerations for targeted uses of grant funds.

### III. Best Practices

#### Planning Instructional Technology Strategies

As district and school level leaders map out the academic needs and goals for the year, an accompanying and integrated instructional technology strategy will ensure that all stakeholders know how technology will be used in in-person instruction, virtual/distance instruction, or various combinations of the both models. Importantly, leaders should plan to increase technology use in standard instructional settings so that students and staff continue to build familiarity and comfort with alternatives to direct/in-person instruction should school building closures occur again. Providing more one-to-one instructional technology experiences may also limit students having to share physical hard-copy materials that may increase the risk of spreading germs. Leveraging past experience and capacity survey data, district leaders may build out strategies designed to support their instructional and operational needs. (Please also see the *Academics Toolkit* with information on instructional strategies and supports.)

#### **Leverage Your Existing Experience & Plan to Instruct on Technology**

For districts or schools that have used technology devices and platforms to complement in-person instruction or school structures, either for a number of years or during the unexpected closures in school year 2019-20, these experiences should help inform any strategy entering the upcoming school year. District leadership, including both operational and academic team members, should evaluate strengths of their current approaches and seek to address any gaps or areas for improvement. Chief among these areas to analyze is how well students and staff have used systems historically and what supports were or would be necessary to improve that utilization experience.

Technology directors and academic leads should consider what types of professional learning are needed for students, staff, and families to be able to use systems seamlessly (Please also see

*Professional Learning Toolkit*). Recognizing that stakeholders may have varying comfort levels, plan to provide additional supports such as:

- Instructional videos (existing content or created by district teams) accessible on sites such as YouTube
- Printed how-to guides to be distributed to staff or students early during school opening
- In-person training sessions that incorporate social distancing practices
- Helpline or office hours for call-in supports
- Vendor-created supports (many platforms and online supports provide suites of training materials aligned to their specific systems)

For teachers aiming to adjust instructional strategies from in-person to virtual settings, the department has also partnered with Trevecca University to offer a training series available for free to all Tennessee educators. More information on this resource is available [here](#).

### **Technology Strategy Components: Devices, Connectivity, and Distance Learning**

Instructional technology strategies will vary to meet the unique contexts of the local district, though all will likely include components related to devices, connectivity, and distance learning capabilities so that district leads may determine the fiscal and support capacity needed for effective implementation. Aligned to the instructional and operational design for the school, the technology strategy should capture the technology needs and supports in the school and home settings. In the same vein, district decisions for instruction and operations should also be informed by the boundaries of a district's and school's capacity within its technology services. District technology leads should play an active role in both informing and working to implement overall district strategies in response to possible new approaches to the typical instructional day and to ensure ongoing instruction should physical presence not be feasible.

#### **□ Device Strategies**

As preparation begins for returning to school, it is important to determine the device strategy going into the fall. Factoring current functionality, desired instructional and operational plans, and capacity to support those strategies, districts should determine at a top level what the goal of the device strategy should be, such as any of the following in isolation or in conjunction with one another:

- 1:1 for all students
- 1:1 for certain grades
- Classroom access to devices on a rotating basis (e.g. laptop cart)
- Bring your own device (BYOD)
- Hybrid models of district owned and BYOD for school setting and/or distance learning

Given the current demand on all manufacturers for laptops, deciding on the strategy early is important to ensure availability at the beginning of the school year. Understanding the cost of each strategy also drives what strategy is selected. There are two avenues to pursue for procurement—local procurement and state contract vehicles. With each of the five large manufacturers (Dell, Lenovo, HP, Apple, and Microsoft), devices and pricing is included with this toolkit. By selecting the device and operating system (OS) platform, you can create models to determine budget and thus the feasibility of various device strategies.

The devices provided by each of the manufacturers for state pricing fall into two categories: teacher devices and student devices. Each category offers two to three student devices to choose from (by platform) and one or two teacher devices from which to select. The goals in choosing devices should be simple:

- Give all students the same experience where feasible.
- Keep the transitions easy; do not change platforms across grades.
- Make the troubleshooting for the teachers easy. The same device will generally be used incorrectly the same way, allowing for more streamlined supports to be effective.
- Functionally, align the devices with the capabilities of the grade by determining what devices are needed at the lower grades (touch-screen or clamshell only) compared to upper grades (more laptop-based approach).

Device purchases compose a large investment for a district to make into the educational tools for the students. As such, protecting that investment is important and maintaining the proper protocols for inventory management, asset tracking, and device management will allow proper forecasting for spend and need throughout the lifecycle. Reporting on budgeted versus actual spend will help district budgets in future years to create a sustainable model and/or identify efficiencies. Some things to consider in setting a budget for a device strategy:

- Outside of normal wear and tear, lost/stolen/unrecoverable can account for anywhere from 5-15% for year.
- Determine whether districts want to pursue a three or four year lifecycle on equipment. While predominant thinking was the technology would phase out in three years; most districts are typically extending to four years to spread the cost.
- Compare the value and investment in leasing options versus purchases. Depending on the models, frequency of replacement, and desired uses, some districts may opt to leverage leasing options that permit more regular device refresh cycles. (The state procurements included in the resources section of this document include options for both leases and purchases.)

- Consider what value-added services may be needed to add to the device procurement, including items such as asset tagging/etching, Compuware for tracking lost devices, hard cases. While it may be more of investment up front, many of these added services save labor and support dollars throughout the year.
- Ensure the district has a mobile device management solution. If using Windows, use InTune for deployment/device management (manages Windows/Apple); If Chrome, use Chrome Device Management.

If districts need help with planning, reach out to peer districts or the department. As models of device strategy and implementation are developed and launched, the department will continue to share best practices from across the state to further support district decisions and strategies.

### □ **Connectivity Strategies**

While most schools in Tennessee may have sufficient broadband access, the closures in 2019-20 demonstrated the importance of planning a connectivity strategy that extends beyond the school building, reaching the homes of students and staff. The number of students/families/staff without internet factors into device strategies (i.e. the need to purchase LTE devices), and the ability to leverage the specific connectivity questions included in the above sample survey provides data on which to build those response strategies. While the state continues to invest in broadband expansion initiatives to ensure increased coverage of service, districts may consider other alternative strategies:

- Leverage Local Providers: Knowing which providers, either via landline or wireless services, are available in a given area gives district leads the list of stakeholders to engage to help fill in any gaps during times of need. Throughout the spring school closures, numerous internet and wireless providers offered additional services at lower or no cost to support ongoing education activities.
- Provide Direct Connectivity Solutions to Students/Staff: If students or staff do not have internet access and may not be able to secure it for any reason, a few options exist for providing direct supports:
  - Obtain wireless hotspots for those students most at need or where broadband is not available. For example, T-Mobile programs allows for unlimited data \$20 Monthly Recurring Charge programs with incentives toward the device. Consider repurposing old devices with hotspot capabilities (e.g. old cell phones) so that the cost is limited only to data charges.
  - Consider promoting low-income broadband programs for those who qualify. Broadband providers are able to waive a number of program restrictions during this time to help families. If families/staff need assistance, state technology resources can connect districts with the broadband account managers who can assist in getting programs in

local areas. The broadband providers in Tennessee have committed to continuing to work with the state for internet access options.

- Intermittent Connectivity: If the district or school education strategy requires only intermittent connectivity (e.g. downloadable content versus requiring streaming access), consider transforming the districts' neighborhoods and resources by:
  - Extend the Wi-Fi in schools out to the parking lots where available/possible. Setup "access times" and guest codes for students and parents to utilize the internet capabilities already in place.
  - Make arrangements with local business partners to have "school time" to use semi-public internet access. Businesses in different areas have been offering reserved space in 3-4 hour blocks to allow for social distancing but also for students to come and do homework and schoolwork online.
  - Use buses as mobile hotspots by with companies like Kajeet and Cisco products. Costs range from \$600-\$1000 per bus depending on the number of connections to be supported from the device. This provides cellular Wi-Fi connections via a provider of your choosing. Consider outfitting buses or centrally locating devices to maximize access for those students.

### ***Distance Learning & Virtual Classrooms***

As districts and schools plan for school opening in the fall, it is important to maintain the progress and familiarity that teachers and staff already possessed or recently obtained with online tools. District technology strategies and decisions should be made with a lens toward interoperability, security, and simplification for your teachers, students, and parents. Plans for distance learning will rely on the ability to leverage technology to fill basic functions that occur in a classroom. While districts may select various learning management systems, education applications or programs, and academic supports, virtual classrooms may operate separate from all of these supports to create the daily connection between teachers and students.

Key questions to map out plans for virtual classrooms should include:

- Is the approach to virtual classrooms a new one? If not, what lessons were learned from implementation?
- Will teachers, families, or students struggle to use the technology? Does the district need to provide digital training or guidance documents?
- What solutions exist to improve technology literacy?
- What technology is the district using for video conferencing?
- What technology is the district using for daily/weekly communications?
- How are teachers distributing assignments? Is the content for all the lessons/standards available to distribute online?

- How are staff/teachers answering questions from students/parents, both in real-time and on a daily/weekly operating basis?
- Has the technology strategy been shared with parents and how the technology will be supported? What is the district's eLearning strategy? Some generic resources are available at the links below:
  - Design an eLearning strategy: <https://www.setda.org/main-coalitions/elearning/>
    - State Plans: <https://www.setda.org/main-coalitions/elearning/state-exemplars/>
    - District Plans: <https://www.setda.org/main-coalitions/elearning/districtplans/>
- Have teachers been trained on how to use the technology effectively? Use the resources available here:
  - Microsoft Innovative Educator – Academies for extending your use of technology in the classroom (<https://www.microsoft.com/en-us/education/events/teacher-academies>)
  - Google for Education for Teacher PD and integrating technology into the classroom - [https://edu.google.com/teacher-center/?modal\\_active=none](https://edu.google.com/teacher-center/?modal_active=none)
- Does the district use an LMS (Learning Management System) already in place? Does that integrate with the district's virtual classroom tool?

After outlining the landscape and strategy, consider what tools best fit local needs and the ease of maintenance demands on current technology staff.

- What is the investment in setup?
- What is the investment in troubleshooting, maintenance, help desk functions?
- Is there commercially available training (or training from partner organizations) that can be leveraged or does the district need to create its own?
- Does the district have support staff to help install and/or maintain the infrastructure?
- Does the district want to maintain it, or if available, does the district want to leverage state resources/procurements or a local vendor?

The tools that districts use in this space should be simple but secure. The fundamental questions for access control, privacy, and data protections still apply. Guidelines to follow:

- Do not setup technology that is not integrated into the district's Active Directory (or other Identity Access Management toolkit),
- Avoid social media as the primary means of communication for messaging and/or assignment distribution,
- Ensure that devices that access district resources meet the district's equipment policy guidelines, and
- Follow the [guidelines](#) on the District Technology page for securing platforms.
- Update the district's acceptable use policy to include collaborations/distance learning tools, video communications, and chat functionality. Make sure students and teachers

have reviewed and signed an updated acceptable use policy.

Be sure to update the districts Technology Acceptable Use policies for both staff and students in collaboration with board attorneys. These policies set important internal controls, and should be updated to reflect the potential broader use of technology and user agreements for students, parents, and staff before the use of district hardware or software.

## IV. Procedures & Schedules

As District Technology leaders prepare to return, consider using the following procedures:

Topic & Action Item	Complete
<b><i>Technology related items:</i></b>	
Ensure that technology inventory is accurate	
Run/update firmware and software updates on network devices.	
Make sure connectivity infrastructure is working as expected.	
Update administration systems. (i.e. emergency notification system, etc.)	
Verify security cameras and building access systems are properly functioning.	
Verify telephone systems are working properly.	
<b><i>EIS/SIS related items:</i></b>	
Confirm that district and school calendars are accurate. Ensure all EIS Calendar data has been updated and sent.	
Update any classroom rosters for changes that may have happened.	
Work with schools to review and update new school year data. (i.e. staff, master schedules, bell times, etc.)	
Work with schools to set staff schedules, if any changes.	
Work with schools to schedule students, if any changes.	
Make sure any EIS errors for prior to closure have been resolved and all updates have been made.	
Plan for upcoming EIS submissions	

## V. Resource List

## **EIS State Reporting Requirements**

Please be sure you are adhering to the published Reporting Schedules for EIS data and state reporting requirements. The schedule is located [here](#).

## **FERPA Review in Education Technology**

### Guide to FERPA

Review federal requirements around privacy protections in planning for distance learning strategies.

## **Distance Learning Supports**

Microsoft Links:

- [Get Started with Microsoft Teams for remote learning](#)
- [Teams for Education quickstart guide](#)
- [Technical Support for Teams](#)
- [School Data Sync](#)

Google Links:

- [Google Classroom](#)
- [Google Classroom Setup Information](#)

## **USDOE Department of Educational Technology**

Link: <https://tech.ed.gov/teachers/>

This resource provides extensive guidance, resources and supports for teachers and leaders when considering digital learning opportunities. Toolkits and concrete examples are included.

## **State Procurement - Product Guide for Devices**

The table below provides information on the devices currently available via state procurement vehicles. Please contact the District Technology team for support in navigating options and launching task orders.

OS	Make	Model	Price
Apple	Apple	iPad Bundle (Case+AppleCare 2 years)	\$ 357.95
Apple	Apple	Ipad with Case	\$ 350.00
Apple	Apple	iPad Only	\$ 294.00
Apple	Apple	iPad Cellular	\$ 429.00
ChromeBook	Dell	Chromebook 3100 2-in-1 Celeron N4020, 4GB, 32GB, WFC, 1 Year Mail	\$ 294.00
ChromeBook	Dell	Chromebook 3100 2-in-1 Celeron N4020, 4GB, 32GB, WFC, 1 Year Basic	\$ 295.50
ChromeBook	Dell	Chromebook 3100 2-in-1 Celeron N4020, EMR, 4GB, 32GB, WFC, 1 Year Mail	\$ 317.00
ChromeBook	Dell	Chromebook 3100 2-in-1 Celeron N4020, EMR, 4GB, 32GB, WFC, 1 Year Basic	\$ 318.50
ChromeBook	Dell	Chromebook 3100 Celeron N4020, 4GB, 16GB, 1 Year Mail	\$ 213.00
ChromeBook	Dell	Chromebook 3100 Celeron N4020, 4GB, 16GB, 1 Year Basic	\$ 214.50
ChromeBook	Dell	Chromebook 3100 Celeron N4000, 4GB, 32GB, 1 Year Mail	\$ 223.50
ChromeBook	Dell	Chromebook 3100 Celeron N4020, Touch, 4GB, 32GB, 1 Year Mail	\$ 247.50
ChromeBook	Dell	Chromebook 3100 Celeron N4020, Touch, 4GB, 32GB, 1 Year Basic	\$ 249.00
Windows	Dell	Latitude 3190 Celeron N4120, Strategic STF, 4GB, 64GB, 1 Year Mail	\$ 256.50
Windows	Dell	Latitude 3190 Celeron N4120, STF, 4GB, 64GB, 1 Year Mail	\$ 272.00
Windows	Dell	Latitude 3190 Pentium N5030, STF, 8GB, 128GB, 3 Year Basic	\$ 394.50
Windows	Dell	Latitude 2-in-1 3190 Celeron N4120, Strategic STF, 4GB, 64GB, 1 Year Mail	\$ 316.00
Windows	Dell	Latitude 2-in-1 3190 Celeron N4120, STF, 4GB, 64GB, 1 Year Mail	\$ 331.00
Windows	Dell	Latitude 2-in-1 3190 Pentium N5030, STF, 8GB, 256GB, 3 Year Basic	\$ 485.00
Windows	Dell	Latitude 3310 2-in-1 XCTO i3-8145U, STF, 8GB, 128GB, 3 Year Basic	\$ 609.50
Windows	Dell	Latitude 3310 2-in-1 XCTO i5-8265U, STF, 8GB, 128GB, 3 Year Basic	\$ 708.00
Windows	Dell	Latitude 3400 i5-8265U, STF, 8GB, 256GB, 3 Year Basic	\$ 585.00

Windows	Dell	Latitude 5400 CTO Base i5-8265U, STF, 8GB, 128GB, 3 Year Basic	\$ 705.00
Windows	Dell	Latitude 5400 CTO Base i5-8265U, STF, 8GB, 256GB, 3 Year Basic	\$ 779.00
Windows	Dell	Latitude 5400 Chrome XCTO Celeron 4305U, 4GB, 128GB, 1 Year Basic	\$ 438.00
Windows	Dell	Latitude 5400 Chrome XCTO i3-8145U, 4GB, 128GB, 1 Year Basic	\$ 516.00
ChromeBook	HP	ChromeBook CB11AG8 A4-9120C 11 4GB/32 PC p/n 16W64UT	\$ 206.70
ChromeBook	HP	ChromeBook CBx36011G3 CelN4020 11 4GB/32 PC p/n 1A767UT	\$ 253.34
ChromeBook	HP	ChromeBook CB14AG5 A4-9120C 14 4GB/32 PC p/n 7CZ98UT	\$ 233.20
Windows	HP	Stream K12 STR11G5 CelN4000 11 4GB/64 PC p/n 5VR92UT	\$ 238.14
Windows	HP	Probook K12 PBx36011G5 CelN4120 11 4GB/128 PC p/n 9PD50UT	\$ 419.76
Windows	HP	Probook 445G7 R5-4500U 14 8GB/256 PC p/n 3H665UT	\$ 683.70
Windows	HP	Probook 360 435 G7, R3-4300U 13 8GB/256 PC p/n 17G35UT	\$ 757.90
ChromeBook	Lenovo	100e Chromebook	\$ 168.00
ChromeBook	Lenovo	300e Chromebook 2-in-1	\$ 248.00
ChromeBook	Lenovo	500e Chromebook 2-in-1 w Pen	\$ 308.00
ChromeBook	Lenovo	14e Chromebook	\$ 232.00
Windows	Lenovo	100e Windows	\$ 186.00
Windows	Lenovo	300e Windows 2-in-1 w Pen	\$ 268.00
Windows	Lenovo	14w Windows	\$ 238.00
Windows	Microsoft	Surface Go with Keyboard	\$ 423.14
Windows	Microsoft	Surface Go LTE with Keyboard	\$ 699.65
Windows	Microsoft	Surface 7 Pro	\$ 800.98