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## General

### Equipment Specifications

The purpose of this document is to provide school districts a standard purchasing procedures document to use when installing or upgrading computer labs. This document provides minimum specifications for equipment, software, furniture, and so forth. The district will be responsible for purchasing and maintaining all equipment, providing proper security, replacing missing equipment, and providing annual funds for the operation of the program. The district is also responsible for providing site preparation and electrical wiring. Schools that wish to purchase items different from those in this specification document will require written permission from the MDE.

Due to budget constraints, districts are encouraged to use existing hardware, software, and furniture and supplement with new items as needed. For existing items, the MDE will waive the requirement to purchase new items if the existing product meets the minimum specifications listed here. Some items in these specifications are listed as “optional,” and it is at the school district’s discretion whether these items should be purchased.

#### Important Notes Concerning this Document

- **When configuring labs, please refer to both the General Equipment Specifications and Pathway Specific Equipment documents located on the Curriculum Download page. The General Equipment Specifications document contains a list of equipment needed to successfully implement all programs. The Pathway Specific document contains a list of equipment needed for a specific pathway. You will need to order the necessary equipment from both lists in order to implement your program.**
- If labs are shared for multiple programs, be sure the minimum specifications are met for all programs.
- Any requests for Apple computers and/or hardware will be handled on a case-by-case basis by the Mississippi Department of Education. Apple should certify that all curricula, hardware, and software will run with items listed elsewhere in this document
- An existing server may be used with approval from local information technology (IT) personnel and the MDE.
- Existing networking equipment may be used if minimum specifications are met.
- Districts that install a wireless lab must gain permission from the MDE. Contact Christy Todd at [ctodd@mde.k12.ms.us](mailto:ctodd@mde.k12.ms.us).
- Districts may choose to purchase switches with fewer than 48 ports, matching the number of ports to the size requirements of the labs. If using a wireless network, wired switch(es) would be shared among labs according to the district's needs.
- Alternate office productivity, keyboarding, creative suite, and/or CAD software may be used upon approval of the MDE. It is recommended that each district investigate existing software licenses to see if these programs may be added.
- This equipment specification document contains preferred items as well as an alternate “thin client” option. If the thin client option is chosen, it is imperative that ample Internet access be available as online software is readily used with this option.

## General Equipment Specifications

### A. Computer Systems and Peripherals

Minimum specifications for lab hardware are based on the current Express Products List (EPL). The Mississippi Department of Information Technology Services (ITS) EPLs have stated dollar spending limits. For instance, for hardware EPLs, the limits are:

- **For purchases over \$50,000, the customer MUST solicit quotations from two or more EPL sellers.**
- For K-12 Schools, the dollar limitation is interpreted by ITS to be \$200,000 per project per school or campus per fiscal year, with a maximum dollar limitation of \$1,000,000 per school district per fiscal year for a project that spans multiple schools within the district.
- Projects costing in excess of \$200,000 are beyond the scope of this delegated process and subject to full ITS review and authorization. Authorization to exceed the EPL dollar limitation is described in the ITS Procurement Handbook under the *EPL Planned Purchase* process, article 013-080. <http://dsitspe01.its.ms.gov/its/procman.nsf/TOC4?OpenView>

Schools that choose to use the ITS EPLs will need to follow the ITS EPL instructions. Schools that choose to advertise for bids are encouraged to use the EPLs to compare prices and quality of equipment submitted on bids.

Inside delivery, installation, and setup must take place by the specified target date. School districts may choose to install the equipment and software themselves or have the EPL vendors perform the installation. If a school prefers that the hardware installation be done by the EPL vendor, the EPL quote must include installation, setup, and training (to be scheduled by each local school district). If a school prefers that the software installation be done by the EPL vendor, the EPL quote must also include pre-loading the software described in Section B “Software,” with the school providing the vendor media and proof of license. Vendors should assume that they will perform hardware and software installation unless otherwise indicated by the school in the quote request.

Vendors must propose systems which are configured with all components provided by the base system manufacturer. If a component is not available from the base system manufacturer, the vendor may propose a compatible third party component only if described in their written proposal. Systems and peripherals must be fully configured prior to shipment.

If a warranted defect is found in an item, that item must be repaired or replaced on-site within five working days of notification. A toll-free or local telephone number with a 24-hour response time must be provided for troubleshooting purposes. In the event that a component must be returned to the manufacturer for warranted repairs, a replacement will be provided by the vendor. Charges for shipping and handling of the component and its replacement must be borne by the vendor during the on-site warranty period. All warranty repairs made to the system during the warranty period must maintain full compatibility of the system with installed software. Any components found to be defective must be replaced with the same brand and model or its successor.

If the school district chooses not to use the ITS EPLs, the Vendor Certification for IT Equipment and software Statement must be signed by the bidder and returned with the bid.

Districts may exercise the option of having all items bid and installed in the specified configuration by a single vendor or multiple vendors. All upgrades are to be installed and operational by the Target Date.

**NOTE: If labs are shared for multiple programs, be sure the minimum specifications are met for all programs. Schools may choose wired or wireless labs. They may also choose to use standard computers or the thin-client option.**

Spec Item No.	Description	Suggested Quantity
1	<p><b>Student Computers</b></p> <p><b>Notes: Districts may purchase either desktop or laptop computers. See the Digital Media Technology specifications for MAC Book Pro and IMAC specifications.</b></p> <p>Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• OS: Windows 7 or newest operating system (Districts may choose version but should be the Professional or Ultimate Edition.)</li> <li>• Processor: Intel Core i3-2120, 3.3+ GHz desktops or i3-2330M 2.20+ GHz laptops microprocessor (latest available recommended)</li> <li>• RAM: System unit with 4 GB RAM expandable to 8 GB RAM on the motherboard.</li> <li>• HDD: One 250 GB (formatted) SATA hard disk drive.</li> <li>• Desktop-Ports: 6 USB 2.0 ports (front and back availability) 1 FireWire (IEEE 1394) Laptop-Ports: 1 DVI or VGA port, 2 USB 2.0 ports, 1 FireWire (IEEE 1394)</li> <li>• Desktop Monitor: 17" LCD color monitor supporting resolutions up to 1280 x 1024, height adjustable. Laptop Display: TFT active matrix color display, 15.6" (widescreen) diagonal (1280 x 800 SVGA).</li> <li>• Desktop Graphics: ATI or NVIDIA chipsets to support minimum 1280 x 1024 native resolution with minimum 128 MB RAM installed and DVI and/or VGA outputs (to be compatible with selected monitor). Laptop Graphics: Local bus video card with 256 MB RAM and graphics accelerator.</li> <li>• Optical Mouse: Two-button with scrolling wheel high-resolution mouse with mouse pad. (Optional if Laptops are purchased.)</li> <li>• Keyboard: Heavy-duty 104-key Windows keyboard. (Optional if Laptops are purchased.)</li> <li>• Desktop Optical Drive: 16x Double-Layer Multi-Format DVD±/R±RW/CD-R/RW. Laptop Optical Drive: 8x Double-Layer Multi-Format DVD±/RW/CD-RW</li> <li>• Sound card: 16 bit soundcard or integrated (100% SoundBlaster compatible), with headphone jacks (standard stereo with volume control) (located on front of machine recommended). Speakers are not required for these systems. If external speakers are chosen, they should be USB-powered and also incorporate a headphone jack.</li> <li>• NIC: PCI-bus 10/100/1000 network interface card, with RJ45 connector, with software driver. (OEM cards supplied by enterprise system manufacturer or integrated on the motherboard are acceptable.)</li> <li>• Laptop Wireless NIC: 802.11n card</li> <li>• Integrated 9-in-1 media card reader</li> <li>• Laptop: Battery with AC adapter</li> </ul> <p>Three-year warranty provided by vendor to include parts and labor (1<sup>st</sup> year on-site). Warranty must include: system, monitor, keyboard, and mouse and/or pointing device, regardless of manufacturer or manufacturer's warranty. The <i>keyboard</i> and <i>mouse</i> are considered plug-and-play items. Therefore Vendor <b>may opt to exchange</b> the keyboard and mouse in lieu of coming on-site, with Vendor paying shipping <b>both to and from</b> the manufacturer or repair facility. Should the Vendor choose not to provide on-site service, the replacement keyboard or mouse</p>	15

Spec Item No.	Description	Suggested Quantity
	<p>should be shipped first, with instructions for the customer to return the damaged keyboard or mouse in the same box.</p> <p>NOTE: Any requests for Apple computers and/or hardware will be handled on a case-by-case basis by the Mississippi Department of Education. Apple should certify that all curricula, hardware, and software will run with items listed elsewhere in this document.</p>	
2	<p><b>Teacher Portable Computer with Port Replicator/Docking Station</b>  <b>Notes: See the Digital Media Technology specifications for MAC Book Pro and IMAC specifications.</b>  <b>Minimum Specifications:</b></p> <ul style="list-style-type: none"> <li>• OS: Windows 7 or newest operating system (Districts may choose version but should be the Ultimate or Professional Edition.)</li> <li>• Processor: Intel Core i3-2330M 2.20+ GHz microprocessor (latest available recommended).</li> <li>• RAM: System unit with 4 GB RAM expandable to 8 GB RAM on the motherboard.</li> <li>• Optical Drive: 8x Double-Layer Multi-Format DVD±R±RW/CD-R/RW.</li> <li>• Sound card: 16 bit soundcard or integrated (100% SoundBlaster compatible), with headphone jacks (standard stereo with volume control) and integrated microphone.</li> <li>• HDD: 250 GB hard drive.</li> <li>• Ports: 1 DVI or VGA port, 2 USB 2.0 ports, 1 FireWire (IEEE 1394)</li> <li>• 9-in-1 media card reader either integrated or as peripheral</li> <li>• Display: TFT active matrix color display, 15.6" (widescreen) diagonal (1366 x 768).</li> <li>• Graphics: Local bus video card with 256 MB RAM and graphics accelerator.</li> <li>• Two External Speakers: 20 watts with external power supply.</li> <li>• NIC: 10/100/1000 card</li> <li>• Wireless NIC: 802.11n card</li> <li>• Wireless Optical Mouse: Two-button with scrolling wheel high-resolution mouse with mouse pad.</li> <li>• Wireless keyboard: 104-key Windows keyboard.</li> <li>• Built-in pointing device (touchpad, track ball, or stick).</li> <li>• Battery with AC adapter.</li> <li>• Laptop carrying case.</li> <li>• <b>Optional:</b> Additional Monitor: 19" LCD color monitor supporting resolutions up to 1280 x 1024, height adjustable. Monitor brand does not have to be the same as the laptop.</li> <li>• <b>Optional:</b> Port Replicator/Docking Station: Must easily dock laptop to the 10/100/1000 network and external monitor and support the simultaneous viewing of the laptop display and external monitor. Port replicator/docking station must support access to the two laptop required USB ports or provide at least two USB ports.</li> <li>• <b>Optional:</b> Light-Sensitive Webcam and Noise-Cancelling Digital Array Microphone</li> </ul> <p>Three-year warranty provided by vendor with parts and labor and accidental damage coverage. Accidental damage coverage must cover the portable computer and all internal components, except the battery.</p> <p>NOTE: Any requests for Apple computers and/or hardware will be handled on a case-by-case basis by the Mississippi Department of Education. Apple should certify that all curricula, hardware, and software will run with items listed elsewhere in this document.</p>	1

Spec Item No.	Description	Suggested Quantity
3	<p><b>Laser Printer</b></p> <p><b>Networked Color Laser Printer</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Network ready with additional USB 2.0 interface (600 MHz minimum)</li> <li>• Includes one set of toner cartridges: First start-up + additional full replacement cartridge</li> <li>• Minimum of one 500-sheet paper tray</li> <li>• Fully “plug-and-play” compatible with Windows 7, XP Pro, or Vista</li> <li>• Print speed: 25 ppm black, 25 ppm color</li> <li>• Print quality: 600 x 600 dpi</li> </ul> <p><b>OR</b></p> <p><b>Networked Black and White Laser Printer</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Network ready with additional USB 2.0 interface (600 MHz minimum)</li> <li>• Includes one set of toner cartridges: First start-up + additional full replacement cartridge</li> <li>• Minimum of one 500-sheet paper tray</li> <li>• Fully “plug-and-play” compatible with Windows 7, XP Pro, or Vista</li> <li>• Print speed: 30 ppm black</li> <li>• Print quality: 600 x 600 dpi</li> </ul> <p>Three-year, on-site warranty provided by vendor.</p>	1
4	<p><b>File Server</b></p> <p><b>File Server (Single lab)</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Two socket server with at least one socket populated with a dual core Intel Xeon processor (3.0 GHz 1333 MHz Bus minimum)</li> <li>• 2 -250 GB minimum 7200 RPM formatted hot swappable SATA hard drives, or 2 - 146 GB minimum 10K RPM formatted hot swappable SAS hard drives, both must be mirrored (level 1 RAID)</li> <li>• 4 GB RAM expandable to 16GB RAM on the motherboard</li> <li>• 2 hot swappable hard drive bays available after the installation of the base hard drives and optical drive (these may or may not be populated)</li> <li>• 2- 10/100/1000 NICs</li> <li>• Redundant power supplies</li> <li>• CD-RW/DVD drive</li> <li>• Keyboard, mouse</li> <li>• 15-inch LCD monitor</li> </ul> <p><i><b>NOTE: An existing server may be used with approval from local information technology (IT) personnel. Items 4-11 refer to the networking of the lab. Existing equipment may be used if minimum specifications are met.</b></i></p> <p>Three-year, on-site warranty provided by vendor.</p>	1

Spec Item No.	Description	Suggested Quantity
5	<p><b>Server Operating System Software</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Operating System – Windows Server 2008, Novell Netware, Linux (District decision based upon existing environment and district technology staff's expertise)</li> <li>• One license per server and appropriate number of CALs</li> <li>• Media</li> <li>•</li> </ul>	1
6	<p><b>Backup Solution for Server</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Recommend LTO Tape Drive, minimum 100GB/200GB for a single server lab. If the backup solution is for multiple servers, make adjustment for the size and type of backup solution needed. Example, tape library/auto loader or external hard drive with capacity at least twice that of the server(s).</li> <li>• Backup Software</li> </ul> <p>Three-year warranty provided by vendor.</p>	1
7	<p><b>UPS</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Must be sized to support the file server</li> </ul> <p>Three year warranty provided by vendor.</p>	1
8	<p><b>Network connectivity (Cat 6a or better cabling <u>or</u> 802.11n wireless)</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Install Cat 6a or Cat 7 or upgrade existing Cat 5 cabling to Cat 6a or 7 (includes pulling, terminating, and testing/certification)</li> <li>• All cabling plant and equipment needed for functioning lab.</li> <li>• Wireless access points capable of minimum of 54 Mbps</li> <li>• Wireless NICs by same manufacturer of access points/router</li> </ul> <p>Two year parts and labor warranty provided by vendor.</p> <p><i><b>NOTE: Districts who install a wireless lab must gain permission from the MDE. Contact Christy Todd at <a href="mailto:ctodd@mde.k12.ms.us">ctodd@mde.k12.ms.us</a>.</b></i></p> <p>Two-year parts-and-labor warranty provided by vendor.</p>	1
9	<p><b>Patch Panel and Cat 6a or 7 Patch Cables to match cabling type (only if using wired connectivity)</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• One 48-port patch panel per lab</li> <li>• 30 patch cables long enough to connect computers to a wall jack (7-10 ft.)</li> <li>• 30 short patch cables for patch panel (3 ft.)</li> </ul> <p>Two-year parts-and-labor warranty provided by vendor.</p>	1
10	<p><b>48-port 10/100/1000 BaseT managed Switch with Gigabit Capability recommended (or number of ports matched to size requirements for lab)</b>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• 48 RJ-45 ports for 10/100/1000 BASE-T with a minimum of two additional ports with gigabit capability. Gigabit ports may or may not be populated, depending upon the needs of the school.</li> </ul>	1

Spec Item No.	Description	Suggested Quantity
	<ul style="list-style-type: none"> <li>• Supports half duplex and full duplex modes auto-negotiation for all ports.</li> <li>• Auto MDI/MDI-X support on all ports for easy cable detection</li> <li>• Efficient MAC Address learning engine supports up to 4K MAC Addresses</li> <li>• Provides store-and-forward forwarding scheme.</li> <li>• Must be standard width and include mounting kit for installation into a rack</li> </ul> <p><i>NOTE: Districts may choose to purchase switches with fewer than 48 ports, matching the number of ports to the size requirements of the labs.</i></p> <p><i>NOTE: If using a wireless network, wired switch(es) would be shared among labs according to the district's needs.</i></p> <p>Two-year parts-and-labor warranty provided by vendor.</p>	
11	<p><b>Rack (or use existing rack)</b> Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Industry standard 19” free standing open frame aluminum equipment rack</li> <li>• Approximately 72” tall</li> <li>• Secured to the classroom/laboratory floor with anchor bolts and to the wall</li> <li>• All active network components, including switch(es), server, monitor with keyboard, and the UPS must be properly mounted in the rack and all associated wiring must be properly dressed to meet all building and telecommunications codes</li> <li>• No equipment should be located on the rack any closer than 8” from the floor to avoid dust and dirt intake through the fan and air vents located on any piece of equipment</li> </ul> <p>One-year parts-and-labor warranty provided by vendor.</p>	1
12	<p><b>Surge Protector</b> Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Six 120v electrical outlets with 6' cord.</li> <li>• Electrical rating - 15 amp, 120Vac, 50/60 Hz, continuous duty, three line protection, 15 amp circuit breaker</li> <li>• Minimum energy dissipation - 900 joules.</li> <li>• UL 1449 TVSS Rating - 330v across all three lines.</li> <li>• Clamping Response - &lt;1 ns.</li> <li>• Noise Suppression - &gt;60-90 dB or UL 1283 approved.</li> <li>• Agency Approvals - UL 1449 TVSS, UL 1283 EMI filter, CSA.</li> </ul> <p>Lifetime product warranty by manufacturer.</p>	15
13	<p><b>Wireless Access Point (3COM Wireless AP9552 “N” PoE Access Point or equal)</b> <b>(Instructor’s laptop is wireless. Student laptops will also be wireless.)</b> <b>For wireless labs only.</b></p> <p>Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Wireless Technology: Wi-Fi – IEEE 802.11 “N”</li> <li>• Antenna: 3 built in internal antennas and connections for three External antennas with Reversed SMA Connectors</li> <li>• Antenna Range: 164FT IEEE 802.11 “N”</li> <li>• Includes wireless LAN controller to support 24 MAPS</li> <li>• 328FT IEEE 802.11 “N”</li> <li>• Frequency: 5 GHz IEEE 802.11 N ISM Band</li> </ul>	1

Spec Item No.	Description	Suggested Quantity
	<ul style="list-style-type: none"> <li>• Band/Bandwidth: 5GHz IEEE 802.11 “N”</li> <li>• Data Encryption: WEP, WPA, and WPA2</li> <li>• Must be compatible with existing LAN switch and connected to existing LAN in local school</li> <li>• Transmission Speed: 108 Mbps</li> <li>• Interfaces/Ports: 1 x RJ-45 10/100/1000 Base-TX LAN</li> <li>• Warranty: Three-Year Standard Limited Warranty</li> <li>• Installation included</li> </ul> <p><b>NOTE: Districts who install a wireless lab must gain permission from the MDE. Contact Christy Todd at <a href="mailto:ctodd@mde.k12.ms.us">ctodd@mde.k12.ms.us</a>.</b></p>	
14	<p><b>Wireless Print Server (HP Jetdirect ew2500 802.11 b/g or equal)</b></p> <p><b>Note: A Wireless “N” print server should be used if available at the time of purchase. If you purchase a printer that needs to be connected wirelessly, you must purchase this item. For wireless labs only.</b></p> <p>Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Network-capable USB peripherals from HP</li> <li>• 802.11 b/g wireless Ethernet</li> <li>• One-year warranty</li> <li>• Windows Server 2003, Windows XP, Windows 7 compatible</li> <li>• Installation guide</li> <li>• CD-ROM with HP Installation Software and documentation</li> <li>• Power Adapter</li> <li>• USB Cable</li> <li>• Ethernet LAN cable</li> </ul> <p><b>NOTE: Districts who install a wireless lab must gain permission from the MDE. Contact Christy Todd at <a href="mailto:ctodd@mde.k12.ms.us">ctodd@mde.k12.ms.us</a></b></p>	1



**B. Software** – All software must include one teacher license and one student license per computer. However, more cost-effective licenses, such as site licenses, are recommended.

School districts are responsible for purchasing licenses (through state contracts, quotations, bids, or sole source) and furnishing their computer hardware vendors with proof of license or media. The computer hardware vendor will install the software on the server or clients as appropriate as part of their quoted hardware price.

Software must include, at a minimum, a 90-day warranty.

*NOTE: If licensure for any software is already available, you may add this program to existing license.*

**NOTE: The software listed in Section B of this document is needed for both the recommended hardware as well as the thin-client hardware option.**

Spec Item No	Description	Suggested Quantity
15	<p><b>Office Productivity Software: Microsoft Office 2010 or most current</b>            License type: Academic License            Edition: Microsoft Office Professional            Media and Documentation included            Includes:</p> <ul style="list-style-type: none"> <li>• Microsoft Word</li> <li>• Microsoft Excel</li> <li>• Microsoft PowerPoint</li> <li>• Microsoft Publisher</li> <li>• Microsoft Access</li> <li>• Microsoft Outlook</li> </ul> <p><i>NOTE: Alternate office productivity software may be used upon approval of the MDE.</i></p>	16
16	<p><b>Symantec Ghost Solution Suite, SID Utility or équivalent</b>            License type: Academic            Edition: Latest Edition            One-Year Maintenance            Media</p>	16
17	<p><b>Lab/Student Workstation Security Rollback Software (Examples are Deep Freeze, Clean Slate, etc.) (Optional)</b>            License type: Academic            Software must:</p> <ul style="list-style-type: none"> <li>• Protect public access computers from malicious or inexperienced users while not restricting users' activities</li> <li>• Restore the computer to its original configuration discarding unwanted user changes, including erased files, installed software, downloaded spyware and adware, downloaded viruses and Trojan horses, and altered icons</li> </ul> <p>Vendor must provide a minimum of two hours of teacher training.</p>	16

18	<p><b>Lab/Student Management Software (Examples are NetOp, SynchronEyes, Vision, SchoolVue, Faronics Insight, etc.) (Optional)</b></p> <p>License type: Academic</p> <p>Software must:</p> <ul style="list-style-type: none"> <li>• Allow teachers to view students as a list for a quick view of who’s present.</li> <li>• Create a virtual seating plan using own classroom-layout. Backgrounds can be saved individually for each class.</li> <li>• View all students’ screens as thumbnails. Double-click to initiate a remote control session. Sort the thumbnails alphabetically in ascending or descending order.</li> <li>• Create and manage recordings of the teacher’s screen or recordings of students’ screens.</li> <li>• Create and manage online tests and test results.</li> <li>• Follow and manage students' use of applications and website in real-time. Close, deny or hide elements on the fly. View, save, or print history list of used applications and sites.</li> <li>• Prepare and manage groups for your classes in a tree view of students. From this view, you can send a message to students listed as available and invite them to join the class.</li> <li>• Allow or deny the use of certain applications on students’ computers.</li> <li>• Allow or deny access to certain Web sites and URLs from students’ computers.</li> <li>• Notify students of the contents of an applied policy (i.e., which applications or Web sites are allowed).</li> <li>• Grab and save screen images during a monitor or remote control session.</li> <li>• Make recordings of activity on the teacher’s screen. Add microphone sound and distribute to students for local replay or demonstrate pre-recorded instructions. Record also students’ screens during a monitor or remote control session.</li> </ul>	16
19	<p><b>Antivirus Software</b></p> <p>License Type: Academic</p> <ul style="list-style-type: none"> <li>• Antivirus, Adware, and Spyware blocking software/solution(s) must be included either with purchase of system or by existing district software licenses.</li> </ul>	16

**C. Other Equipment**

Spec Item No.	Description	Suggested Quantity
20	<p><b>Interactive board (or portable interactive system to convert a whiteboard into an interactive board)</b>            Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Interactive board, mount, installation, and a minimum of two hours of training</li> <li>• Minimum 60” diagonal (72” or above diagonal recommended)</li> <li>• Speakers (<b>Optional:</b> May use teacher’s two external speakers instead)</li> <li>• Wireless slate or tablet to control the interactive board</li> </ul> <p style="text-align: center;"><b>Or</b></p> <p>Portable Interactive System specifications:</p> <ul style="list-style-type: none"> <li>• Portable interactive system, installation, and a minimum of two hours of training</li> <li>• Mounted vertically or horizontally to whiteboard and with mounting brackets</li> <li>• Stylus pen with rechargeable battery</li> <li>• Function buttons</li> <li>• USB interface</li> <li>• Cables, software, and guide booklets</li> </ul> <p>Two-year parts-and-labor warranty provided by vendor.</p>	1
21	<p><b>LCD Projector</b>            Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Resolution: 1024 x 768</li> <li>• Brightness: 2600 ANSI lumens</li> <li>or</li> <li>• “Short Throw” Projector</li> <li>• Resolution: 1024 x 768</li> <li>• Brightness: 1500 ANSI lumens</li> <li>• <b>Optional</b> distribution amplifier for longer distances or choose a wireless projector with a wireless network</li> </ul> <p>District may choose a ceiling mount projector, short throw projector, or projector cart, but the mount/cart must be included in the vendor’s price. Ceiling-mount and short- throw projectors must be properly installed with all cords and wiring neatly embedded in ceiling or wall conduit. The classroom teacher should be consulted before the projector is mounted to ensure proper classroom configuration. Two-year parts-and-labor warranty, with the exception of the lamp, provided by vendor. If the lamp warranty is less than two years, vendor must provide a description of the lamp warranty.</p>	1
22	<p><b>Wireless Presentation Remote</b>            Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Control PowerPoint presentations 25- 50 feet away</li> <li>• Laser pointer</li> <li>• USB connection</li> </ul> <p>Requirement may be satisfied if remote is included with projector or interactive board.</p>	1

23	<p><b>Digital Camera (Optional)</b></p> <p>Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• 12.1 megapixel sensor captures 2,816 X 2,112 images for prints at sizes up to 8 X 10.</li> <li>• LCD image view finder.</li> <li>• Autofocus lens with 12x12x optical zoom.</li> <li>• Stores images on memory stick or SD card (included).</li> <li>• Connects with PCs via USB port and/or FireWire (IEEE 1394).</li> <li>• Includes flash, rechargeable battery, and AC adapter/charger.</li> <li>• Includes bundled software for editing and printing pictures.</li> <li>• Compatible with Windows operating systems</li> </ul>	1
24	<p><b>Headsets</b></p> <p>Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• District may choose to purchase lab sets of hard-plastic, over-the-head headphones or disposable student ear buds/headphones.</li> <li>• If selected headphones do not include a microphone, a separate microphone must be provided.</li> <li>• Must include extension cord if sound card jack is on back of computer.</li> <li>• Include a “Y” adapter to provide for 2 headphones connected to one computer.</li> </ul>	16

**D. Furniture –**

**Due to budget constraints, districts are encouraged to use existing furniture and supplement with new items as needed. For existing furniture, the MDE will waive the requirement to purchase new items if the existing product meets the minimum specifications listed here.**

Schools are encouraged to request the same equipment and furniture from all vendors providing quotes. Quotes from vendors must include inside delivery, installation, and setup. Inside delivery, installation, and setup must take place by the target date, unless otherwise specified.

It is recommended that the student and teacher computer workstation furniture, printer stands, media cabinet with lock, bookcases, filing cabinets, and student work tables be quoted as a package supplied and installed by a single vendor. Printer stands, in some instances, may be available on the Micro EPL as an option to the chosen printer. Vendors must coordinate with local school district personnel to develop a layout to show how the workstations will be placed in the lab to verify that adequate space exists. This layout must be included with the quote.

It is recommended that task chairs be quoted as a package supplied and installed by a single vendor. All chairs should be the same matching color which should coordinate with the workstations and table furnishings.

The Vendor Certification Statement for Furniture (page 23) must be signed by the vendor and returned with the quote.

It is recommended that districts consider using furniture contracts from the Department of Finance and Administration, Office of Purchasing, Travel, and Fleet Management (DFA-OPTFM) when possible for discounts as well as reduced time in quote solicitation. Vendors chosen must still sign the Vendor Certification form referenced above.

Spec Item No	Description	Suggested Quantity
25	<p><b>Student Computer Workstation (Optional)</b>                      Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Modular free-standing workstation.</li> <li>• All must be steel-reinforced and scratch- and chip resistant.</li> <li>• Top: Solid-core fiberboard w/ high pressure laminate top and thick bumper edge molding with rounded edges and corners, grommet holes for cables.</li> <li>• Telescoping steel legs with leveling guides.</li> <li>• Suggested Dimensions:                             <ul style="list-style-type: none"> <li>○ Adjustable height from 23" to a maximum of 32" or as needed for lab size.</li> <li>○ Dimensions of 30"d X and 36"w or as needed for lab size.</li> <li>○ Includes wire CPU tower holder to be mounted under the workstation (8½"w X 20"d X 21"h) or as needed for lab size.</li> </ul> </li> </ul>	12-28
26	<p><b>Teacher Computer Workstation (Optional)</b>                      Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Modular free-standing workstation.</li> <li>• Must be steel-reinforced, scratch and chip resistant.</li> <li>• Top: Solid core fiberboard w/high pressure laminate top and thick bumper edge molding with rounded edges and corners, grommet holes for cables.</li> <li>• Telescoping steel legs with leveling guides.</li> <li>• Suggested Dimensions:</li> </ul>	1

	<ul style="list-style-type: none"> <li>○ Adjustable height from 24" to a maximum of 36" or as needed for lab size.</li> <li>○ Dimensions of 30"d X and 72"w or as needed for lab size.</li> <li>○ Includes Mobile Box/Box/File Drawer Pedestal (19"d X 16"w X 27"h) or as needed for lab size.</li> </ul>	
27	<p><b>Printer Stands (Optional)</b> Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Modular free-standing stand to match construction of student workstations.</li> <li>• Must be steel-reinforced and scratch- and chip resistant.</li> <li>• Top: Solid-core fiberboard w/high pressure laminate top and thick bumper edge molding with rounded edges and corners.</li> <li>• Suggested Dimensions: 24"d x 27"w.</li> <li>• To include Steel Book Box 18"w x 15"d x 3.5"h.</li> <li>• Printer stand sized and recommended by printer manufacturer acceptable.</li> <li>• Printer stands may be purchased from furniture vendor or ITS EPL vendor.</li> </ul>	1-2
28	<p><b>Chairs (Optional)</b> Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Adjustable pneumatic lift chairs with carpet or soft-tread casters appropriate for lab flooring.</li> <li>• 5-point base with swivel seat and fixed back.</li> <li>• Color: Dark coordinating color to match the computer workstations.</li> <li>• Seat and back to be thick solid molded plastic or composite surface.</li> <li>• Minimum dimensions: adjustable height – 15"-20."</li> </ul>	12-28
29	<p><b>Multimedia Cabinet with Lock (Optional)</b> Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Metal or hard, sturdy plastic</li> <li>• Lockable</li> <li>• Large enough to fit digital cameras and digital video camera</li> </ul>	1
30	<p><b>Bookcase (Optional)</b> Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• As requested by school district</li> </ul>	1
31	<p><b>Filing Cabinet (Optional)</b> Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• As requested by school district</li> </ul>	1
32	<p><b>Student Work Tables (Optional)</b> Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• As requested by school district</li> </ul>	Maximum of 4

<p>33</p>	<p><b>Laptop Mobile Storage Cart</b>  <i>Note: If student laptops are purchased, you must purchase this item.</i>  Minimum Specifications:</p> <ul style="list-style-type: none"> <li>• Construction: All metal welded construction with cabinet structural supports and dividers of 18-gauge steel and side panels and doors of 20-gauge steel</li> <li>• Storage Capacity: 24 adjustable compartments, each with its own electrical outlet</li> <li>• Compartment Size: 12"W x 17"D x 3"H or greater</li> <li>• Electrical Access: Front or Rear Electrical Outlets for 24 Notebooks (15 amp, 120 volt, internally grounded and polarized, with surge protection)</li> <li>• Caster Wheel Size: 5"</li> <li>• Caster Capability: Locking Brakes for Stability</li> <li>• Panels: Perforated Panels for Ventilation</li> <li>• Top Surface: Flat covered with rubber mat</li> <li>• Cart doors with multiple point secure locking system</li> </ul> <p>The laptop mobile storage cart provides the convenience of a mobile computer classroom and allows laptop computers to be easily moved between rooms and shared among students. Can be used as a central storage location for laptops and locks for storage of valuable computer equipment. Stores and charges up to 24 laptop computers in individual compartments. Provides room on top shelf for a work surface or for use with printers or wireless devices.</p>	<p>1</p>
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