PPENDIX

Mapping to the CompTIA A+ Objectives

220-1001 Exam Objectives

Competency	Chapter(s)
1.0 Mobile Devices	
1.1 Given a scenario, install and configure laptop hardware and components	
Hardware/device replacement	23
Keyboard	23
Hard drive	23
SSD vs. hybrid vs. magnetic disk	23
• 1.8in vs. 2.5in	23
Memory	23
Smart card reader	23
Optical drive	23
Wireless card/Bluetooth module	23
Cellular card	23
Video card	23
Mini PCle	23
• Screen	23
• DC jack	23
• Battery	23
Touchpad	23
• Plastics/frames	23
• Speaker	23
System board	23
• CPU	23

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Competency (220-1001)	Chapter(s)
1.2 Given a scenario, install components within the display of a laptop	
• Types	
• LCD	23
• OLED	23
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• Webcam	23
Microphone	23
• Inverter	23
Digitizer/touchscreen	23
1.3 Given a scenario, use appropriate laptop features	
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Dual displays	23
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• Cellular (on/off)	23
Volume settings	23
Screen brightness	23
• Bluetooth (on/off)	23
Keyboard backlight	23
• Touchpad (on/off)	23
Screen orientation	23
 Media options (fast forward/rewind) 	23
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Airplane mode	23
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Port replicator	23
Physical laptop lock and cable lock	23
Rotating/removable screens	23
1.4 Compare and contrast characteristics of various types of other mobile devices	
Tablets	24
• Smartphones	24
Wearable technology devices	24
Smart watches	24
Fitness monitors	24
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• E-readers	24
• GPS	24

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Competency (220-1001)	Chapter(s)
1.5 Given a scenario, connect and configure accessories and ports of other mobil	le devices
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• Lightning	24
Tethering	24
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• Wireless	24
• NFC	24
Bluetooth	24
• IR	24
• Hotspot	24
• Accessories	24
Headsets	24
• Speakers	24
Game pads	24
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Tethering	24
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Enable Bluetooth	24
Enable pairing	24
Find a device for pairing	24
Enter the appropriate pin code	24
Test connectivity	24
Corporate and ISP email configuration	24
• POP3	24
• IMAP	24

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Competency (220-1001)	Chapter(s)
Port and SSL settings	24
• S/MIME	24
 Integrated commercial provider email configuration 	24
• iCloud	24
Google/Inbox	24
Exchange Online	24
• Yahoo	24
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• IMEI vs. IMSI	24
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Bookmarks	24
• Documents	24
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Software requirements to install the application on the PC	24
 Connection types to enable synchronization 	24

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Competency (220-1001)	Chapter(s)
2.0 Networking	
2.1 Compare and contrast TCP and UDP ports, protocols, and their purposes	
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• 22 – SSH	21
• 23 – Telnet	21
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• 53 – DNS	21
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• 143 – IMAP	21
• 443 – HTTPS	21
• 3389 – RDP	21
• 137-139 – NetBIOS/NetBT	21
• 445 – SMB/CIFS	21
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• Switches	18, 19
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 Access points 	20
Cloud-based network controller	20
• Firewall	27
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• Hub	18
Cable/DSL modem	21
Bridge	18
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Competency (220-1001)	Chapter(s)
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Competency (220-1001)	Chapter(s)
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• 2.4Ghz	20
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Competency (220-1001)	Chapter(s)
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Cable stripper	18
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Tone generator and probe	19

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Competency (220-1001)	Chapter(s)
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Punchdown tool	18
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Competency (220-1001)	Chapter(s)
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• IDE	8
• SCSI	8
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• BNC	18
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• DDR2	4
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Competency (220-1001)	Chapter(s)
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Optical drives	10
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• BD-R	10
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• Sizes:	8
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Competency (220-1001)	Chapter(s)
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• PCle	6
Riser card	6
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Boot options	5
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• Security	5
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Virtual technology	3
Hyperthreading	3
• Speeds	3
Overclocking	3
Integrated GPU	3
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• Intel	3
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Competency (220-1001)	Chapter(s)
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Game controllers	10
Camera/webcam	10
Microphone	10
• Speakers	10
Headset	10, 24
• Projector	17
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External storage drives	8
• KVM	10
Magnetic reader/chip reader	24
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Smart card reader	10

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Competency (220-1001)	Chapter(s)
3.7 Summarize power supply types and features	
• Input 115V vs. 220V	7
Output 5.5V vs. 12V	7
24-pin motherboard adapter	7
Wattage rating	7
 Number of devices/types of devices to be powered 	7
3.8 Given a scenario, select and configure appropriate components for a custom PC co to meet customer specifications or needs	nfiguration
Graphic/CAD/CAM design workstation	11
Multicore processor	11
High-end video	11
Maximum RAM	11
Audio/video editing workstation	11
Specialized audio and video card	11
Large, fast hard drive	11
Dual monitors	11
Virtualization workstation	11
Maximum RAM and CPU cores	11
Gaming PC	11
Multicore processor	11
High-end video/specialized GPU	11
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Standard thick client	11
Desktop applications	11
 Meets recommended requirements for selected OS 	11
Thin client	11
Basic applications	11
Meets minimum requirements for selected OS	11
Network connectivity	11
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Media streaming	11
• File sharing	11
Gigabit NIC	11
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Competency (220-1001)	Chapter(s)
3.9 Given a scenario, install and configure common devices	
• Desktop	
Thin client	11
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Laptop/common mobile devices	
Touchpad configuration	23
Touchscreen configuration	24
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Account setup/settings	24
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3.10 Given a scenario, configure SOHO multifunction devices/printers and settings	
 Use appropriate drivers for a given operating system 	26
Configuration settings	26
• Duplex	26
• Collate	26
Orientation	26
• Quality	26
Device sharing	26
• Wired	26
• USB	26
• Serial	26
• Ethernet	26
• Wireless	26
Bluetooth	26
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 TCP/Bonjour/AirPrint 	26
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 User authentication on the device 	26
Hard drive caching	26

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Competency (220-1001)	Chapter(s)
3.11 Given a scenario, install and maintain various print technologies	
• Laser	26
 Imaging drum, fuser assembly, transfer belt, transfer roller, pickup rollers, separate pads, duplexing assembly 	26
 Imaging process: processing, charging, exposing, developing, transfer- ring, fusing, and cleaning 	26
• Maintenance: Replace toner, apply maintenance kit, calibrate, clean	26
• Inkjet	26
 Ink cartridge, print head, roller, feeder, duplexing assembly, carriage, and belt 	26
Calibrate	26
• Maintenance: Clean heads, replace cartridges, calibrate, clear jams	26
Thermal	26
Feed assembly, heating element	26
Special thermal paper	26
Maintenance: Replace paper, clean heating element, remove debris	26
• Impact	26
Print head, ribbon, tractor feed	26
Impact paper	26
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• SaaS	22
• PaaS	22
Public vs. private vs. hybrid vs. community	22
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Competency (220-1001)	Chapter(s)
Rapid elasticity	22
On-demand	22
Resource pooling	22
Measured service	22
Metered	22
Off-site email applications	22
Cloud file storage services	22
Synchronization apps	22
Virtual application streaming/cloud-based applications	22
Applications for cell phones/tablets	22
Applications for laptops/desktops	22
Virtual desktop	22
Virtual NIC	22
4.2 Given a scenario, set up and configure client-side virtualization	
Purpose of virtual machines	22
Resource requirements	22
Emulator requirements	22
Security requirements	22
 Network requirements 	22
Hypervisor	22
5.0 Hardware and Network Troubleshooting	
5.1 Given a scenario, use the best practice methodology to resolve problems	
 Always consider corporate policies, procedures, and impacts before implementing changes 	1
1. Identify the problem	1
 Question the user and identify user changes to computer and perform backups before making changes 	1
Inquire regarding environmental or infrastructure changes	1
Review system and application logs	1
2. Establish a theory of probable cause (question the obvious)	1
• If necessary, conduct external or internal research based on symptoms	1
3. Test the theory to determine cause	1
• Once the theory is confirmed, determine the next steps to resolve problem	1
• If theory is not confirmed re-establish new theory or escalate	1
4. Establish a plan of action to resolve the problem and implement the solution	1

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Competency (220-1001)	Chapter(s)
Verify full system functionality and, if applicable, implement preventive measures	1
6. Document findings, actions, and outcomes	1
5.2 Given a scenario, troubleshoot problems related to motherboards, RAM, CPUs, ar	nd power
Common symptoms	
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System lockups	3, 4
POST code beeps	5
Blank screen on bootup	4, 16
 BIOS time and setting resets 	5
Attempts to boot to incorrect device	16
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No power	6
Overheating	3, 7
Loud noise	6
Intermittent device failure	6, 7
• Fans spin – no power to other devices	6
Indicator lights	6
• Smoke	7
Burning smell	7
 Proprietary crash screens (BSOD/pin wheel) 	3, 16
Distended capacitors	6
Log entries and error messages	11
5.3 Given a scenario, troubleshoot hard drives and RAID arrays	
Common symptoms	9
Read/write failure	9
Slow performance	9
Loud clicking noise	9
Failure to boot	9
Drive not recognized	9
OS not found	9
RAID not found	9
RAID stops working	9
 Proprietary crash screens (BSOD/pin wheel) 	9
• S.M.A.R.T. errors	9

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Competency (220-1001)	Chapter(s)
5.4 Given a scenario, troubleshoot video, projector, and display issues	
Common symptoms	
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No image on screen	17
Overheat shutdown	17
Dead pixels	17
• Artifacts	17
Incorrect color patterns	17
Dim image	17
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Distorted geometry	17
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Oversized images and icons	17
Multiple failed jobs in logs	17
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Dim display	23
Flickering display	23
Sticking keys	23
Intermittent wireless	23
Battery not charging	23
Ghost cursor/pointer drift	23
No power	23
Num lock indicator lights	23
No wireless connectivity	23
No Bluetooth connectivity	23
Cannot display to external monitor	23
Touchscreen non-responsive	25
Apps not loading	25
Slow performance	25
Unable to decrypt email	25
Extremely short battery life	25
Overheating	25

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Competency (220-1001)	Chapter(s)
Frozen system	25
No sound from speakers	25
GPS not functioning	25
Swollen battery	25
 Disassembling processes for proper reassembly 	23
Document and label cable and screw locations	23
Organize parts	23
Refer to manufacturer resources	23
Use appropriate hand tools	23
5.6 Given a scenario, troubleshoot printers	
Common symptoms	26
• Streaks	26
Faded prints	26
Ghost images	26
• Toner not fused to the paper	26
Creased paper	26
Paper not feeding	26
Paper jam	26
No connectivity	26
Garbled characters on paper	26
Vertical lines on page	26
Backed-up print queue	26
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Printer will not print	26
Color prints in wrong print color	26
Unable to install printer	26
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Printing blank pages	26
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5.7 Given a scenario, troubleshoot common wired and wireless network problems	
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Limited connectivity	21
Unavailable resources	21
• Internet	21

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Competency (220-1001)	Chapter(s)
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• Shares	19
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• Email	19
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• Low RF signal	20
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Competency	Chapter(s)
1.0 Operating Systems	
1.1 Compare and contrast common operating system types and their purposes	
• 32-bit vs. 64-bit	2, 3
RAM limitations	3, 4
Software compatibility	3, 14
Workstation operating systems	2
Microsoft Windows	2
Apple Macintosh OS	2
• Linux	2
Cell phone/tablet operating systems	2
Microsoft Windows	24
Android	24
• iOS	24
Chrome OS	23
Vendor-specific limitations	
• End-of-life	11
Update limitations	11
 Compatibility concerns between operating systems 	11

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Competency (220-1002)	Chapter(s)
1.2 Compare and contrast features of Microsoft Windows versions	
• Windows 7	2
• Windows 8	2
• Windows 8.1	2
• Windows 10	2
Corporate vs. personal needs	
Domain access	11
• Bitlocker	11
Media center	11
Branchcache	11
• EFS	11
Desktop styles/user interface	11
1.3 Summarize general OS installation considerations and upgrade methods	
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• CD-ROM	11
• DVD	11
• PXE	11
Solid state/flash drives	11
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External/hot-swappable drive	11
Internal hard drive (partition)	11
Type of installations	11
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Repair installation	16
Multiboot	11
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• Primary	9

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Competency (220-1002)	Chapter(s)
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• NFS	21
• ext3, ext4	9
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Load alternate third-party drivers when necessary	11
Workgroup vs. Domain setup	11
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•	15
• ipconfig	19
• ping	19
• tracert	19
• netstat	21
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• shutdown	15
• dism	11
• sfc	15
• chkdsk	15

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Competency (220-1002)	Chapter(s)
• diskpart	16
• taskkill	16
• gpupdate	15
• gpresult	15
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• copy	15
• xcopy	15
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• net use	19
• net user	16
• [command name] /?	15
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1.5 Given a scenario, use Microsoft operating system features and tools	
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Competency (220-1002)	Chapter(s)
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Splitting partitions	9
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Assigning/changing drive letters	9
Adding drives	9
Adding arrays	9
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Regedit	12
• Command	15
 Services.msc 	12
• MMC	14
• MSTSC	21
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Competency (220-1002) • Unauthorized camera/microphone activation • High resource utilization 4.0 Operational Procedures 4.1 Compare and contrast best practices associated with types of documentation • Network topology diagrams • Knowledge base/articles • Incident documentation • Regulatory and compliance policy • Acceptable use policy • Password policy • Inventory management • Asset tags • Barcodes • Barcodes
4.0 Operational Procedures 4.1 Compare and contrast best practices associated with types of documentation • Network topology diagrams • Knowledge base/articles • Incident documentation 28 • Regulatory and compliance policy • Acceptable use policy • Password policy • Inventory management 28 • Asset tags • Barcodes 28
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 Do not argue with customers and/or be defensive Avoid dismissing customer problems 	Personal interruptions	1
Avoid dismissing customer problems 1	Dealing with difficult customers or situations	1
- :	Do not argue with customers and/or be defensive	1
Avoid being judgmental 1	Avoid dismissing customer problems	1
	Avoid being judgmental	1

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Competency (220-1002)	Chapter(s)
 Clarify customer statements (ask open-ended questions to narrow the scope of the problem, restate the issue, or question to verify understanding) 	1
 Do not disclose experiences via social media outlets 	1
• Set and meet expectations/timeline and communicate status with the customer	1
Offer different repair/replacement options, if applicable	1
 Provide proper documentation on the services provided 	1
 Follow up with customer/user at a later date to verify satisfaction 	1
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