

Cisco IT Essentials v6 Standards Alignment

Texas Computer Maintenance TEKS (§130.273)

CompTIA A+ Objectives (901 & 902)

CompTIA IT Fundamentals Objectives (FC0-U51)

*Microsoft Technology Associate (MTA):
Windows Operating System Fundamentals Objectives (98-349)*



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IT Essentials v6.0 Outline

This course provides a comprehensive introduction to the IT industry and in-depth exposure to personal computers, hardware, and operating systems. Students learn how various hardware and software components work and best practices in maintenance, safety, and security. Through hands-on lab activities, students learn how to assemble and configure computers, install operating systems and software, and troubleshoot hardware and software issues.

Chapter /Section	Goals/Objectives
Chapter 1. Introduction to the Personal Computer	Select the appropriate computer components to build, repair, or upgrade personal computers.
1.1 Personal Computer Systems	Explain how personal computer system components work together.
1.2 Select Computer Components	Select the appropriate computer components.
1.3 Configurations for Specialized Computer Systems	Explain how hardware is configured for task-specific computers.
Chapter 2. Lab Procedures and Tool Use	Lab and Tool Safety.
2.1 Safe Lab Procedures	Explain the purpose of safe working conditions and safe lab procedures.
2.2 Proper Use of Tools	Explain how to use tools and software with personal computer components.
Chapter 3. Computer Assembly	Install components to build, repair, or upgrade personal computers.
3.1 Assemble the Computer	Build a computer.
3.2 Boot the Computer	Explain how to verify BIOS and UEFI settings.
3.3 Upgrade and Configure a Computer	Explain how to upgrade components in a computer system to meet requirements.
Chapter 4. Overview of Preventive Maintenance and the Troubleshooting Process	Explain how to perform preventive maintenance and troubleshooting on personal computers.
4.1 Preventive Maintenance	Explain why preventive maintenance must be performed on personal computers.
4.2 Troubleshooting Process	Explain how to troubleshoot computer problems.
Chapter 5. Windows Installation	Perform installation of Microsoft Windows operation systems.
5.1 Modern Operating Systems	Explain operating system requirements.
5.2 Operating System Installation	Install a Microsoft Windows operating system.
Chapter 6. Windows Configuration and Management	Perform configuration, management, maintenance, and troubleshooting of Microsoft Windows operating systems.
6.1 Windows Desktop, Tools, and Applications	Perform routine system management tasks with common Microsoft Windows tools.
6.2 Client-Side Virtualization	Configure virtualization on a computer.
6.3 Common Preventive Maintenance Techniques for Operating Systems	Use common preventive maintenance techniques for Microsoft Windows operating systems.
6.4 Basic Troubleshooting Process for Operating Systems	Explain how to troubleshoot Microsoft Windows operating systems.

IT Essentials v6.0 Outline

Chapter /Section	Goals/Objectives
Chapter 7. Network Concepts 7.1 Principles of Networking 7.2 Networking Standards 7.3 Physical Components of a Network 7.4 Basic Networking Concepts and Technologies	Explain the operation of networks. Explain components and types of computer networks. Explain the purpose and characteristics of networking standards. Explain the purpose of physical components of a network. Configure network connectivity between PCs.
Chapter 8. Applied Networking 8.1 Computer to Network Connection 8.2 ISP Connection Technologies 8.3 Internet Technologies 8.4 Common Preventive Maintenance Techniques Used for Networks 8.5 Basic Troubleshooting Process for Networks	Configure devices to connect to LANs, the Internet, and Cloud services. Connect a computer to wired and wireless networks. Explain the purpose and characteristics of ISP connection technologies. Explain Cloud concepts and networked-host services. Explain how to perform preventive maintenance on networks using common techniques. Explain how to troubleshoot networks.
Chapter 9. Laptops and Mobile Devices 9.1 Laptop Components 9.2 Laptop Configuration 9.3 Laptop Hardware and Component Installation and Configuration 9.4 Mobile Device Hardware Overview 9.5 Common Preventive Maintenance Techniques for Laptops and Mobile Devices 9.6 Basic Troubleshooting Process for Laptops and Mobile Devices	Explain how to configure, repair, upgrade, maintain and troubleshoot laptops and mobile devices. Explain the purpose and characteristics of laptops. Explain how to configure laptop power settings and wireless settings. Explain how to remove and install laptop components. Explain the purpose and characteristics of mobile devices. Explain how to perform common preventive maintenance techniques for laptops and mobile devices. Explain how to troubleshoot laptops and mobile devices.
Chapter 10. Mobile, Linux, and OS X Operating Systems 10.1 Mobile Operating Systems 10.2 Methods for Securing Mobile Devices 10.3 Network Connectivity and Email 10.4 Linux and OS X Operating Systems 10.5 Basic Troubleshooting Process for Mobile, Linux, and OS X Operating Systems	Explain how to configure, secure and troubleshoot mobile, Mac, and Linux operating systems. Explain the purpose and characteristics of mobile operating systems. Explain methods for securing mobile devices. Explain how to configure network connectivity and email on mobile devices. Explain the purpose and characteristics of Linux and OS X operating systems. Explain how to troubleshoot Mobile, Linux, and OS X operating systems.

IT Essentials v6.0 Outline

Chapter /Section	Goals/Objectives
Chapter 11. Printers	Install a printer to meet requirements.
11.1 Common Printer Features	Explain the purpose and characteristics of different types of printers.
11.2 Installing and Configuring Printers	Install a printer.
11.3 Sharing Printers	Configure printer sharing.
11.4 Maintaining and Troubleshooting Printers	Explain how to improve printer availability.
Chapter 12. Security	Implement basic host, data, and network security.
12.1 Security Threats	Explain security threats.
12.2 Security Procedures	Configure IT security.
12.3 Common Preventive Maintenance Techniques for Security	Manage IT security on an ongoing basis.
12.4 Basic Troubleshooting Process for Security	Explain how to troubleshoot basic security problems.
Chapter 13. The IT Professional	Explain the roles and responsibilities of the IT professional.
13.1 Communication Skills and the IT Professional	Explain why good communication skills are a critical part of IT work
13.2 Ethical and Legal Issues in the IT Industry	Explain appropriate behavior when faced with the legal and ethical issues that arise in the IT industry.
13.3 Call Center Technicians	Explain the call center environment and technician responsibilities.
Chapter 14. Advanced Troubleshooting	Troubleshoot advanced hardware and software problems.
14.1 Computer Components and Peripherals	Troubleshoot computer components and peripherals.
14.2 Operating Systems	Troubleshoot operating systems.
14.3 Networks	Troubleshoot networks.
14.4 Security	Troubleshoot security.

IT Essentials v6 Curriculum Mapping

Chapter	Description	Curriculum	Lab	PT	Worksheet
0 Course Introduction					
0.1	Message to the Student	x			
0.2	The IT Industry	x			
0.2.2.2	Job Opportunities				x
1 Introduction to the Personal Computer System					
1.1	Personal Computer Systems	x			
1.1.1.4	Ohms Law				x
1.2	Selecting Computer Components	x			
1.2.1.13	Research Computer Components				x
1.3	Configurations for Specialized Computer Systems	x			
1.3.1.7	Build a Specialized Computer System				x
2: Lab Procedures and Tool Use					
2.1	Safe Lab Procedures	x			
2.2	Proper Use of Tools	x			
2.2.2.3	Diagnostic Software				x
2.2.4.4	Using a Multimeter and a Power Supply Tester		x		
2.2.4.7	Computer Disassembly		x		
3: Computer Assembly					
3.1	Computer Assembly	x			
3.1.1.3	Install the Power Supply		x		
3.1.2.6	Install the Motherboard		x		
3.1.3.3	Install the Drives		x		
3.1.4.4	Install Adapter Cards		x		
3.1.5.5	Install Internal Cables		x		
3.1.5.8	Install Front Panel Cables		x		
3.1.5.12	Complete the Computer Assembly		x		
3.2	Boot the Computer	x			
3.2.2.8	Boot the Computer		x		
3.3	Upgrade and Configure a PC	x			
3.3.1.6	BIOS File Search		x		
3.3.3.2	Upgrade Hardware				x
4: Overview of Preventive Maintenance and the Troubleshooting Process					
4.1	Preventive Maintenance	x			
4.2	Troubleshooting Process	x			
5. Windows Installation					
5.1	Modern Operating Systems	x			
5.1.2.3	Search NOC Certifications and Jobs				x
5.1.4.4	Data Migration in Windows		x		
5.2	Operating System Installation	x			
5.2.1.7	Install Windows		x		
5.2.1.10	Check for Updates in Windows		x		
5.2.4.7	Create a Partition in Windows		x		
6. Windows Configuration and Management					
6.1	The Windows GUI and Control Panel	x			
6.1.1.5	Task Manage in Windows		x		
6.1.1.9	Install Third-Party Software		x		
6.1.2.3	Create User Accounts		x		
6.1.2.5	Configure Browser Settings		x		
6.1.2.12	Managing Virtual Memory		x		
6.1.2.14	Device Manger		x		
6.1.2.16	Regional and Language Options		x		
6.1.3.7	Monitor and Manage System Resources		x		
6.1.4.2	Hard Drive Maintenance		x		
6.1.4.4	Managing System Files in Windows		x		

IT Essentials v6 Curriculum Mapping

Chapter	Description	Curriculum	Lab	PT	Worksheet
6.1.5.4	Common Windows CLI Commands		X		
6.1.5.6	System Utilities		X		
6.2	Client-Side Virtualization	X			
6.3	Common Preventive Maintenance Techniques for OSs	X			
6.3.1.2	Managing the Startup Folder		X		
6.3.1.5	Task Scheduler		X		
6.3.1.7	System Restore		X		
6.4	Basic Troubleshooting Process for Oss	X			
7. Network Concepts					
7.1	Principles of Networking	X			
7.2	Networking Standards	X			
7.3	Physical Components of a Network	X			
7.3.2.6	Build and Test Network Cables		X		
7.3.2.7	Packet Tracer - Cabling a Simple Network			X	
7.4	Basic Networking Concepts and Technologies	X			
7.4.1.11	Configure a NIC to Use DHCP in Windows		X		
7.4.1.12	Packet Tracer - Adding Computers to an Existing Network			X	
8. Applied Networking					
8.1	Computer to Network Connection	X			
8.1.2.10	Connect to a Router for the First Time		X		
8.1.2.11	Packet Tracer - Connect to a Wireless Router and Configure Basic Settings			X	
8.1.2.12	Configure Wireless Router in Windows		X		
8.1.2.13	Packet Tracer - Connect Wireless Computers to a Wireless Router			X	
8.1.2.14	Test the Wireless NIC in Windows		X		
8.1.2.15	Packet Tracer - Test a Wireless Connection			X	
8.1.3.9	Share Resources in Windows		X		
8.1.4.3	Remote Assistance in Windows		X		
8.1.4.4	Remote Desktop in Windows		X		
8.2	ISP Connection Technologies	X			
8.3	Internet Technologies	X			
8.4	Common Preventative Maintenance Techniques Used for Networks	X			
8.5	Basic Troubleshooting Process for Networks	X			
9. Laptops and Mobile Devices					
9.1	Laptop Components	X			
9.1.1.6	Research Docking Stations				X
9.2	Laptop Configuration	X			
9.3	Laptop Hardware and Component Installation and Configuration	X			
9.3.1.5	Research Laptop RAM				
9.3.2.3	Research Laptop Batteries				X
9.3.2.5	Research Laptop Screens				X
9.3.2.7	Research Laptop Hard Drives				X
9.3.2.14	Research Building a Specialized Laptop				X
9.4	Mobile Device Hardware Overview	X			
9.5	Common Preventive Maint. Technoques for Laptops and Mobile Device	X			
9.6	Basic Troubleshooting Process for Laptops and Mobile Devices	X			
9.6.2.2	Research Laptop Problems				X
9.6.2.3	Gather Information from the Customer				X
9.6.2.4	Investigating Support Website				X
10. Mobile, Linux, and OS X Operating Systems					
10.1	Mobile Operating Systems	X			
10.1.2.3	Working with Android		X		
10.1.5.3	Mobile Device Features		X		
10.1.5.4	Mobile Device Information				X
10.2	Methods for Securing Mobile Devices	X			
10.2.1.2	Passcode Locks		X		
10.3	Network Connectivity and Email	X			

IT Essentials v6 Curriculum Mapping

Chapter	Description	Curriculum	Lab	PT	Worksheet
10.3.1.2	Mobile Wi-Fi		x		
10.4	Linux and OS X Operating Systems	x			
10.4.1.4	Install Linux in a Virtual Machine and Explore the GUI		x		
10.4.3.3	Working with the Linux Command Line		x		
10.5	Basic Troubleshooting Process for Mobile, Linux, and OS X Oses	x			
10.5.2.2	Troubleshooting Mobile Devices		x		
11: Printers					
11.1	Common Printer Features	x			
11.2	Installing and Configuring Printers	x			
11.2.1.6	Install a Printer		x		
11.3	Sharing Printers	x			
11.3.2.5	Share a Printer		x		
11.4	Maintaining and Troubleshooting Printers	x			
12: Security					
12.1	Security Threats	x			
12.2	Security Procedures	x			
12.2.1.8	Configure Windows Local Security Policy		x		
12.2.5.8	Packet Tracer - Configure Wireless Security			x	
12.3	Common Preventive Maintenance Techniques for Security	x			
12.3.1.3	Configure Data Backup and Recovery in Windows		x		
12.3.1.5	Configure the Firewall in Windows		x		
12.3.1.9	Configure Users and Groups in Windows		x		
12.4	Basic Troubleshooting Process for Security	x			
12.4.2.2	Document Customer Information in a Work Order				x
13: The IT Professional					
13.1	Communication Skills and the IT Professional	x			
13.1.1.3	Technician Resources				x
13.2	Ethical and Legal Issues in the IT Industry	x			
13.3	Call Center Technicians	x			
14 Advanced Troubleshooting					
14.1	Computer Components and Peripherals	x			
14.1.1.2	Troubleshoot Hardware Problems		x		
14.1.1.3	Remote Technician - Fix a Hardware Problem		x		
14.2	Operating Systems	x			
14.2.1.2	Troubleshooting Operating System Problems		x		
14.2.1.3	Remote Technician - Fix an Operating System Problem		x		
14.3	Networks	x			
14.3.1.2	Troubleshoot Network Problems		x		
14.3.1.3	Remote Technician - Fix a Network Problem		x		
14.4	Security	x			
14.4.1.2	Troubleshoot Security Problems		x		
14.4.1.3	Remote Technician - Fix a Security Problem		x		

IT Essentials Standards Alignment

Aligned to: TEKS – Computer Maintenance; CompTIA – A+ Objectives, CompTIA IT Fundamentals Objectives, Microsoft Technology Associate: OS Fundamentals

Chapter	Outcomes Students will learn to:	TEKS Objectives ©	Labs / Study Guides / Assignments	A+ Objectives	IT Fundamentals Objectives	MTA: OS Fundamentals Objectives
0: Introduction	<ul style="list-style-type: none"> demonstrate the necessary skills for career development, employability, and successful completion of course outcomes. identify various employment opportunities in the information technology field. applies academic skills to the requirements of computer technologies. 	1.A-I 2.A-C 3.A-D	0.2.2.2	N/A	N/A	N/A
1: Introduction to the Personal Computer	<ul style="list-style-type: none"> explain the fundamentals of microprocessor theory. define the use of Boolean logic in computer technologies. explain the theories of magnetism, electricity, and electronics as related to computer technologies. differentiate among digital, analog, and input and output electronics theory. explain the relationships relative to data-communications theory. describe the architecture of various computer systems. describe the function of computer components such as central processing units, storage devices, and peripheral devices. explain computer system environmental requirements and related control devices. identify new and emerging technologies that may affect the field of computer technology such as quantum computing, phototonics, and nanotechnology. identify the purpose and function of computer components in the operation of the computer system such as central processing unit, mother board, sockets, chipsets, basic input and output system and their drivers, memory, hard drive technologies, video cards, input and output devices and ports, and modem and network interface cards (NIC). 	4.A 4.B 4.C 4.E 4.F 4.G 4.H 4.I 5.D 7.A	1.1.1.4 1.2.1.13 1.3.1.7	901.1.1 901.1.2 901.1.3 901.1.4 901.1.5 901.1.6 901.1.7 901.1.8 901.1.9 901.1.10 901.1.11 901.1.12	2.2 2.3	5.1 5.2 5.4
2: Lab Procedures and Tool Use	<ul style="list-style-type: none"> demonstrate safe use of equipment in computer technologies such as hand and power tools. employ available reference documentation such as tools, materials, and Internet sources to access information as needed. demonstrate proper handling and disposal of environmentally hazardous materials used in computer technologies. use electronic test equipment to measure current, voltage, power, and resistance. 	5.A 5.B 5.C 6.A	2.2.2.3 2.2.4.4 2.2.4.7	902.4.1 902.4.2	5.5	None
3: Computer Assembly	<ul style="list-style-type: none"> use electronic test equipment to measure current, voltage, power, and resistance. describe digital circuit design. identify the operational features and proper terminology related to computer systems. identify the various components of a computer system such as the central processor, basic input and output system, read-only memory, and random access memory. identify the purpose and function of computer components in the operation of the computer system such as central processing unit, mother board, sockets, chipsets, basic input and output system and their drivers, memory, hard drive technologies, video cards, input and output devices and ports, and modem and network interface cards (NIC). assemble and install a basic computer system. install and configure computer components and peripherals. 	6.A 6.B 6.C 6.D 7.A 7.D 7.E	3.1.1.3 3.1.2.6 3.1.3.3 3.1.4.4 3.1.5.5 3.1.5.8 3.1.5.12 3.2.2.8 3.3.1.6 3.3.3.2	901.1.1 901.1.2 901.1.3 901.1.3 901.1.5 901.1.6 901.1.7 901.1.8 901.1.9 901.1.10 901.1.11 901.1.12	2.1 2.2 2.3	None

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Aligned to: TEKS – Computer Maintenance; CompTIA – A+ Objectives, CompTIA IT Fundamentals Objectives, Microsoft Technology Associate: OS Fundamentals

Chapter	Outcomes Students will learn to:	TEKS Objectives ©	Labs / Study Guides / Assignments	A+ Objectives	IT Fundamentals Objectives	MTA: OS Fundamentals Objectives
4: Overview of Preventive Maintenance and the Troubleshooting Process	<ul style="list-style-type: none"> explain proper troubleshooting techniques as related to computer hardware. employ available reference documentation such as tools, materials, and Internet sources to access information as needed. uses troubleshooting skills with hardware knowledge to solve client problems. develop a written disaster recovery plan. develop a written preventive maintenance plan. 	4.D 5.B 8.A-M 12.A 12.B	None	901.1.12 901.4.1 901.4.2 901.4.3 901.4.4	5.1 5.2 5.3	None
5: Windows Installation	<ul style="list-style-type: none"> explain the fundamentals of an operating system. compare and contrast different operating systems. verify software is properly licensed prior to installation. install application and systems software using available resources as needed. resolve problems with installation if any occur, including recovery from system error. 	9.A 9.B 10.B 10.C 10.D	5.1.2.3 5.1.4.4 5.2.1.7 5.2.1.10 5.2.4.7	902.1.1 902.1.2	1.1	2.1 2.2 2.3 4.1 4.4 5.4
6: Windows Configuration and Management	<ul style="list-style-type: none"> reinstall software as needed. evaluate application software packages and test the functionality of a proposed software configuration. verify software is properly licensed prior to installation. install application and systems software using available resources as needed. resolve problems with installation if any occur, including recovery from system error. perform software customization as requested. document all procedures. install and maintain security software. 	6.K 10.A 10.B 10.C 10.D 10.E 10.F 10.G	6.1.1.5 6.1.1.9 6.1.2.3 6.1.2.5 6.1.2.12 6.1.2.14 6.1.2.16 6.1.3.7 6.1.4.2 6.1.4.4 6.1.5.4 6.1.5.6 6.3.1.2 6.3.1.5 6.3.1.7	902.1.3 902.1.4 902.1.5 902.1.7 902.3.4 902.3.5 902.4.1 902.4.2 902.6.2	1.2 1.3 1.4 5.1 5.2 5.3	1.1 1.2 1.3 1.5 2.4 3.1 3.2 3.3 3.4 3.5 4.1 4.2 4.3 4.4 5.1 5.2 5.4 6.1 6.2 6.3
7: Network Concepts	<ul style="list-style-type: none"> demonstrate an understanding of network connection and interface requirements. 	11.A	7.3.2.6 7.3.2.7 7.4.1.11 7.4.1.12	901.2.1 901.2.2 901.2.3 901.2.4 901.2.7 901.2.8 901.2.9	4.1 4.2 4.3	None
8: Applied Networking	<ul style="list-style-type: none"> demonstrate an understanding of network connection and interface requirements. install and configure a computer on a network. verify and troubleshoot network connectivity. 	11.A 11.B 11.C	8.1.2.10 8.1.2.11 8.1.2.12 8.1.2.13 8.1.2.14 8.1.2.15 8.1.3.9 8.1.4.3 8.1.4.4	901.2.3 901.2.4 901.2.5 901.2.6 901.2.7 901.2.8 901.2.9 901.4.4 902.1.6 902.1.7 902.3.7	1.5 4.1 4.2 4.3	2.4

IT Essentials Standards Alignment

Aligned to: TEKS – Computer Maintenance; CompTIA – A+ Objectives, CompTIA IT Fundamentals Objectives, Microsoft Technology Associate: OS Fundamentals

Chapter	Outcomes Students will learn to:	TEKS Objectives ©	Labs / Study Guides / Assignments	A+ Objectives	IT Fundamentals Objectives	MTA: OS Fundamentals Objectives
9: Laptops and Mobile Devices	<ul style="list-style-type: none"> acquires an understanding of computer technologies. employ available reference documentation such as tools, materials, and Internet sources to access information as needed. demonstrate proper handling and disposal of environmentally hazardous materials used in computer technologies. identify new and emerging technologies that may affect the field of computer technology such as quantum computing, phototonics, and nanotechnology. identify the operational features and proper terminology related to computer systems; identify the purpose and function of computer components in the operation of the computer system such as central processing unit, mother board, sockets, chipsets, basic input and output system and their drivers, memory, hard drive technologies, video cards, input and output devices and ports, and modem and network interface cards (NIC). assemble and install a basic computer system 	4.A-I 5.B 5.C 5.D 6.C 7.A 7.D	9.1.1.6 9.3.1.5 9.3.2.3 9.3.2.5 9.3.2.7 9.3.2.14 9.6.2.2 9.6.2.3 9.6.2.4	901.3.1 901.3.2 901.3.3 901.4.5 902.1.1 902.1.2 902.3.4 902.3.5	1.5	1.4
10: Mobile, Linux, and OS X Operating Systems	<ul style="list-style-type: none"> identify the operation of mobile devices such as personal data assistants and cell phones. identify how mobile devices such as personal data assistants and cell phones connect and share data. assemble and install a basic computer system. install and configure computer components and peripherals. install and maintain security software. 	7.B 7.C 7.D 7.E 10.G	10.1.2.3 10.1.5.3 10.1.5.4 10.2.1.2 10.3.1.2 10.4.1.4 10.4.3.3 10.5.2.2	902.2.1 902.2.2 902.2.3 902.2.4 902.2.5 902.2.6 902.2.7 902.3.3 902.3.5 902.4.3 902.4.4	2.1 2.2	1.1 1.3 1.4 3.1 3.2 3.3
11: Printers	<ul style="list-style-type: none"> describe the function of computer components such as central processing units, storage devices, and peripheral devices. explain computer system environmental requirements and related control devices. identify the operational features and proper terminology related to computer systems. troubleshoot computer peripheral devices. install and configure computer components and peripherals. differentiate between hardware and software failure. 	4.H 4.I 6.C 6.E 7.E 11.4	11.2.1.6 11.3.2.5	901.1.12 901.1.13 901.1.14 901.1.15 901.4.6	2.1 4.2	5.3
12: Security	<ul style="list-style-type: none"> explain proper troubleshooting techniques as related to computer hardware. troubleshoot computer peripheral devices. install and maintain security software. develop a written preventive maintenance plan. 	4.D 6.E 10.G 12.B	12.2.1.8 12.2.5.8 12.3.1.3 12.3.1.5 12.3.1.9 12.4.2.2	902.3.1 902.3.2 902.3.3 902.3.4 902.3.5 902.3.6 902.3.7	3.1 3.2 3.3 5.4 5.5	1.5 3.3 4.3 6.1 6.2 6.3

IT Essentials Standards Alignment

Aligned to: TEKS – Computer Maintenance; CompTIA – A+ Objectives, CompTIA IT Fundamentals Objectives, Microsoft Technology Associate: OS Fundamentals

Chapter	Outcomes Students will learn to:	TEKS Objectives ©	Labs / Study Guides / Assignments	A+ Objectives	IT Fundamentals Objectives	MTA: OS Fundamentals Objectives
13: The IT Professional	<ul style="list-style-type: none"> • identify and demonstrate positive work behaviors that enhance employability and job advancement such as regular attendance, promptness, attention to proper attire, maintenance of a clean and safe work environment, appropriate voice, and pride in work. • identify and demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, listening attentively to speakers, and willingness to learn new knowledge and skills. • employ effective reading and writing skills. • employ effective verbal and nonverbal communication skills. • solve problems and think critically. • demonstrate leadership skills and function effectively as a team member. • identify and implement proper safety procedures. • demonstrate an understanding of legal and ethical responsibilities in relation to the field of information technology. • demonstrate planning and time-management skills such as project management and storyboarding. • identify job opportunities and accompanying job duties and tasks. • research careers of personal interest along with the education, job skills, and experience required to achieve personal career goals. • examine the role of certifications, resumés, and portfolios in the information technology profession. 	1.A 1.B 1.C 1.D 1.E 1.F 1.G 1.H 1.I 2.A 2.B 2.C	13.1.1.3	902.5.1 902.5.2 902.5.3 902.5.4 902.5.5	None	None
14: Advanced Trouble-shooting	<ul style="list-style-type: none"> • demonstrate effective verbal and written communication skills with individuals from varied cultures such as fellow workers, management, and customers. • complete work orders for repair and installation; • estimate supplies, materials, and labor costs for installation, maintenance, and repair work orders. • interpret appropriate documentation such as schematics, drawings, charts, diagrams, technical manuals, and bulletins. • explain proper troubleshooting techniques as related to computer hardware. • troubleshoot computer peripheral devices. • understand the rationale behind error messages and symptoms of hardware failures. • know interrupt sequences and beep codes. • identify priorities and interrupts at the system level. • test system using diagnostic tools and software. • identify problems in the operating systems. • differentiate between hardware and software failure. • update flash memory. • demonstrate hard drive maintenance procedures such as defrag scan and clear caches. • gather information from user. • repair malfunctioning hardware systems. • reinstall software as needed. • demonstrate backup and recovery. • restore a system to various states such as safe modes and previous. 	3.A 3.B 3.C 3.D 4.D 6.E 8.A 8.B 8.C 8.D 8.E 8.F 8.G 9.H 9.I 8.J 8.K 8.L 8.M	14.1.1.2 14.1.1.3 14.2.1.2 14.2.1.3 14.3.1.2 14.3.1.3 14.4.1.2 14.4.1.3	901.4.1 901.4.2 901.4.3 901.4.4 901.4.5 901.4.6 902.4.1 902.4.2 902.5.5	5.1 5.2 5.3 5.4 5.5	1.5 3.3 6.1 6.2 6.3

IT Essentials v6 to Computer Maintenance TEKS Correlation

§130.273. Computer Maintenance		IT Essentials Section
(a) General requirements. This course is recommended for students in Grades 10-12.		
(b) Introduction. Students acquire principles of computer maintenance, including electrical and electronic theory, computer hardware principles,		
(c) Knowledge and skills.		
(1) The student demonstrates the necessary skills for career development, employability, and successful completion of course outcomes. The student is expected to:		
(A) identify and demonstrate positive work behaviors that enhance employability and job advancement such as regular attendance, promptness, attention to proper attire, maintenance of a clean and safe work environment, appropriate voice,		0.1, 0.2, 13.1, 13.2
(B) identify and demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, listening attentively to speakers, and willingness to learn new knowledge and skills.		0.1, 0.2, 13.1, 13.2
(C) employ effective reading and writing skills.		0.1, 0.2, 13.1, 13.2
(D) employ effective verbal and nonverbal communication skills.		0.1, 0.2, 13.1, 13.2
(E) solve problems and think critically.		0.1, 0.2, 13.1, 13.2
(F) demonstrate leadership skills and function effectively as a team member.		0.1, 0.2, 13.1, 13.2
(G) identify and implement proper safety procedures.		0.1, 0.2, 13.1, 13.2
(H) demonstrate an understanding of legal and ethical responsibilities in relation to the field of information technology.		0.1, 0.2, 13.1, 13.2
(I) demonstrate planning and time-management skills such as project management and storyboarding.		0.1, 0.2, 13.1, 13.2
(2) The student identifies various employment opportunities in the information technology field. The student is expected to:		
(A) identify job opportunities and accompanying job duties and tasks.		0.1, 0.2, 13.1, 13.2, 13.3
(B) research careers of personal interest along with the education, job skills, and experience required to achieve personal career goals.		0.1, 0.2, 13.1, 13.2, 13.3
(C) examine the role of certifications, resumés, and portfolios in the information technology profession.		0.1, 0.2, 13.1, 13.2
(3) The student applies academic skills to the requirements of computer technologies. The student is expected to:		
(A) demonstrate effective verbal and written communication skills with individuals from varied cultures such as fellow workers, management, and customers.		0.1, 0.2, 14.1, 14.2, 14.3, 14.4
(B) complete work orders for repair and installation.		0.1, 0.2, 14.2, 14.3, 14.4
(C) estimate supplies, materials, and labor costs for installation, maintenance, and repair work orders.		0.1, 0.2, 14.2, 14.3, 14.4
(D) interpret appropriate documentation such as schematics, drawings, charts, diagrams, technical manuals, and bulletins.		0.1, 0.2, 14.2, 14.3, 14.4
(4) The student acquires an understanding of computer technologies. The student is expected to:		
(A) explain the fundamentals of microprocessor theory.		1.1, 1.2, 1.3, 9.1, 9.2, 9.3, 9.4
(B) define the use of Boolean logic in computer technologies.		1.1, 1.2, 1.3, 9.1, 9.2, 9.3, 9.4
(C) explain the theories of magnetism, electricity, and electronics as related to computer technologies.		1.1, 1.2, 1.3, 9.1, 9.2, 9.3, 9.4
(D) explain proper troubleshooting techniques as related to computer hardware.		4.2, 9.5, 9.6, 12.4, 14.2, 14.3, 14.4
(E) differentiate among digital, analog, and input and output electronics theory.		1.1, 1.2, 1.3, 9.1, 9.2, 9.3, 9.4
(F) explain the relationships relative to data-communications theory.		1.1, 1.2, 1.3, 9.1, 9.2, 9.3, 9.4
(G) describe the architecture of various computer systems.		1.1, 1.2, 1.3, 9.1, 9.2, 9.3, 9.4
(H) describe the function of computer components such as central processing units, storage devices, and peripheral devices.		1.1, 1.2, 1.3, 9.1, 9.2, 9.3, 9.4, 11.1
(I) explain computer system environmental requirements and related control devices.		1.1, 1.2, 1.3, 9.1, 9.2, 9.3, 9.4, 11.2
(5) The student knows the proper function and application of the tools, equipment, and materials used in computer technologies.		
(A) demonstrate safe use of equipment in computer technologies such as hand and power tools.		2.1
(B) employ available reference documentation such as tools, materials, and Internet sources to access information as needed.		2.1, 4.1, 4.2, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6
(C) demonstrate proper handling and disposal of environmentally hazardous materials used in computer technologies.		2.1, 9.1, 9.2, 9.3, 9.4
(D) identify new and emerging technologies that may affect the field of computer technology such as quantum computing, phototonics, and nanotechnology.		1.1, 1.2, 1.3, 2.1, 9.1, 9.2, 9.3, 9.4
(6) The student applies the concepts and skills of the trade in simulated work situations. The student is expected to:		
(A) use electronic test equipment to measure current, voltage, power, and resistance.		2.2, 3.1, 3.3
(B) describe digital circuits design.		3.1, 3.3
(C) identify the operational features and proper terminology related to computer systems.		3.1, 3.3, 9.1, 9.4, 11.1
(D) identify the various components of a computer system such as the central processor, basic input and output system, read-only memory, and random access memory.		3.1, 3.3
(E) troubleshoot computer peripheral devices.		11.4, 12.4, 14.2, 14.3, 14.4

IT Essentials v6 to Computer Maintenance TEKS Correlation

§130.273. Computer Maintenance	IT Essentials Section
(7) The student uses hardware design, operation, and maintenance knowledge and skills to provide computer support.	
(A) identify the purpose and function of computer components in the operation of the computer system such as central processing unit, mother board, sockets, chipsets, basic input and output system and their drivers, memory, hard drive technologies, video cards, input and output devices and ports, and modem and network interface cards (NIC).	1.1, 1.2, 1.3, 3.2, 9.2, 9.5
(B) identify the operation of mobile devices such as personal data assistants and cell phones.	10.1, 10.4
(C) identify how mobile devices such as personal data assistants and cell phones connect and share data.	10.1, 10.4
(D) assemble and install a basic computer system.	3.1, 3.2, 9.3, 9.4, 10.1, 10.4
(E) install and configure computer components and peripherals.	3.1, 3.3, 10.1, 10.4, 11.2, 11.3
(8) The student uses troubleshooting skills with hardware knowledge to solve client problems. The student is expected to:	
(A) understand the rationale behind error messages and symptoms of hardware failures.	4.1, 4.2, 14.2, 14.3, 14.4
(B) know interrupt sequences and beep codes.	4.1, 4.2, 14.2, 14.3, 14.4
(C) identify priorities and interrupts at the system level.	4.1, 4.2, 14.2, 14.3, 14.4
(D) test system using diagnostic tools and software.	4.1, 4.2, 14.2, 14.3, 14.4
(E) identify problems in the operating systems.	4.1, 4.2, 14.2, 14.3, 14.4
(F) differentiate between hardware and software failure.	4.1, 4.2, 11.4, 14.2, 14.3, 14.4
(G) update flash memory.	4.1, 4.2, 14.2, 14.3, 14.4
(H) demonstrate hard drive maintenance procedures such as defrag scan and clear caches.	4.1, 4.2, 14.2, 14.3, 14.4
(I) gather information from user.	4.1, 4.2, 14.2, 14.3, 14.4
(J) repair malfunctioning hardware systems.	4.1, 4.2, 14.2, 14.3, 14.4
(K) reinstall software as needed.	4.1, 4.2, 6.4, 14.2, 14.3, 14.4
(L) demonstrate backup and recovery.	4.1, 4.2, 14.2, 14.3, 14.4
(M) restore a system to various states such as safe modes and previous.	4.1, 4.2, 14.2, 14.3, 14.4
(9) The student demonstrates and applies knowledge of operating system design, including operation and maintenance, to perform	
(A) explain the fundamentals of an operating system.	5.1, 5.2
(B) compare and contrast different operating systems.	5.1, 5.2
(10) The student installs and configures software programs and updates information technology systems. The student is expected to:	
(A) evaluate application software packages and test the functionality of a proposed software configuration.	6.1, 6.2, 6.3, 6.4
(B) verify software is properly licensed prior to installation.	5.1, 5.2, 6.1, 6.2, 6.3, 6.4
(C) install application and systems software using available resources as needed.	5.1, 5.2, 6.1, 6.2, 6.3, 6.4
(D) resolve problems with installation if any occur, including recovery from system error.	5.1, 5.2, 6.1, 6.2, 6.3, 6.4
(E) perform software customization as requested.	6.1, 6.2, 6.3, 6.4
(F) document all procedures.	6.1, 6.2, 6.3, 6.4
(G) install and maintain security software.	6.1, 6.2, 6.3, 6.4, 10.2, 12.2, 12.3
(11) The student installs, configures, and verifies active network connection. The student is expected to:	
(A) demonstrate an understanding of network connection and interface requirements.	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3, 8.4, 8.5
(B) install and configure a computer on a network.	8.1, 8.2, 8.3, 8.4, 8.5
(C) verify and troubleshoot network connectivity.	8.1, 8.2, 8.3, 8.4, 8.5
(12) The student provides support to computer users to maintain service. The student is expected to:	
(A) develop a written disaster recovery plan.	4.2
(B) develop a written preventive maintenance plan.	4.2, 12.3

IT Essentials v6 to CompTIA A+ Objectives Correlation

CompTIA A+ 220-901	IT Essentials Section
1.0 Hardware	
1.1 Given a scenario, configure settings and use BIOS/UEFI tools on a PC.	1.1, 1.2, 1.3, 3.1, 3.3
1.2 Explain the importance of motherboard components, their purpose and properties.	1.1, 1.2, 1.3, 3.1, 3.3
1.3 Compare and contrast various RAM types and their features.	1.1, 1.2, 1.3, 3.1, 3.3
1.4 Install and configure PC expansion cards.	1.1, 1.2, 1.3, 3.1, 3.3
1.5 Install and configure storage devices and use appropriate media.	1.1, 1.2, 1.3, 3.1, 3.3
1.6 Install various types of CPUs and apply the appropriate cooling methods.	1.1, 1.2, 1.3, 3.1, 3.3
1.7 Compare and contrast various PC connection interfaces, their characteristics and purpose.	1.1, 1.2, 1.3, 3.1, 3.3
1.8 Install a power supply based on given specifications.	1.1, 1.2, 1.3, 3.1, 3.3
1.9 Given a scenario, select the appropriate components for a custom PC configuration to meet customer specifications or needs.	1.1, 1.2, 1.3, 3.1, 3.3
1.10 Compare and contrast types of display devices and their features.	1.1, 1.2, 1.3, 3.1, 3.3
1.11 Identify common PC connector types and associated cables.	1.1, 1.2, 1.3, 3.1, 3.3
1.12 Install and configure common peripheral devices.	1.1, 1.2, 1.3, 3.1, 3.3, 4.1, 4.2, 11.1
1.13 Install SOHO multifunction device/printers and configure appropriate settings.	11.1, 11.2, 11.3
1.14 Compare and contrast differences between the various print technologies and the associated imaging process.	11.1
1.15 Given a scenario, perform appropriate printer maintenance.	11.4
2.0 Networking	
2.1 Identify the various types of network cables and connectors.	7.1, 7.2, 7.3, 7.4
2.2 Compare and contrast the characteristics of connectors and cabling.	7.1, 7.2, 7.3, 7.4
2.3 Explain the properties and characteristics of TCP/IP.	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3
2.4 Explain common TCP and UDP ports, protocols and their purpose.	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3
2.5 Compare and contrast various WiFi networking standards and encryption types.	8.1, 8.2, 8.3
2.6 Given a scenario, install and configure SOHO wireless/wired router and apply appropriate settings.	8.1, 8.2, 8.3
2.7 Compare and contrast Internet connection types, network types and their features.	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3
2.8 Compare and contrast network architecture devices, their functions and features.	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3
2.9 Given a scenario, use appropriate networking tools.	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3
3.0 Mobile Devices	
3.1 Install and configure laptop hardware and components.	9.1, 9.5
3.2 Explain the function of components within the display of a laptop.	9.1, 9.3
3.3 Given a scenario, use appropriate laptop features.	9.2, 9.3
3.4 Explain the characteristics of various types of other mobile devices.	9.4
3.5 Compare and contrast accessories and ports of other mobile devices.	9.4
4.0 Hardware and Network Troubleshooting	
4.1 Given a scenario, troubleshoot common problems related to motherboards, RAM, CPU and power with appropriate tools.	4.1, 4.2, 8.1, 8.2, 8.3, 14.1
4.2 Given a scenario, troubleshoot hard drives and RAID arrays with appropriate tools.	4.1, 4.2, 8.1, 8.2, 8.3, 14.1
4.3 Given a scenario, troubleshoot common video, projector and display issues.	4.1, 4.2, 8.1, 8.2, 8.3, 14.1
4.4 Given a scenario, troubleshoot wired and wireless networks with appropriate tools.	4.1, 4.2, 8.1, 8.2, 8.3, 8.4, 8.5, 14.3
4.5 Given a scenario, troubleshoot and repair common mobile device issues while adhering to the appropriate procedures.	4.1, 4.2, 8.1, 8.2, 8.3, 14.1
4.6 Given a scenario, troubleshoot printers with appropriate tools.	4.1, 4.2, 8.1, 8.2, 8.3, 11.4, 14.1, 14.2, 14.3, 14.4

IT Essentials v6 to CompTIA A+ Objectives Correlation

CompTIA A+ 220-902	IT Essentials Section
1.0 Windows Operating Systems	
1.1 Compare and contrast various features and requirements of Microsoft Operating Systems (Windows Vista, Windows 7, Windows 8, Windows 8.1).	5.1, 9.1
1.2 Given a scenario, install Windows PC operating systems using appropriate methods.	5.2, 9.1
1.3 Given a scenario, apply appropriate Microsoft command line tools.	6.1, 6.2, 6.3, 6.4
1.4 Given a scenario, use appropriate Microsoft operating system features and tools.	6.1, 6.2, 6.3, 6.4
1.5 Given a scenario, use Windows Control Panel utilities.	6.1, 6.2, 6.3, 6.4
1.6 Given a scenario, install and configure Windows networking on a client/desktop.	8.1, 8.2, 8.3
1.7 Perform common preventive maintenance procedures using the appropriate Windows OS tools	6.1, 6.2, 6.3, 6.4, 8.4, 8.5
2.0 Other Operating Systems and Technologies	
2.1 Identify common features and functionality of the Mac OS and Linux operating systems.	10.1, 10.3, 10.4
2.2 Given a scenario, set up and use client-side virtualization.	10.1, 10.3, 10.4
2.3 Identify basic cloud concepts.	10.1, 10.3, 10.4
2.4 Summarize the properties and purpose of services provided by networked hosts.	10.1, 10.3, 10.4
2.5 Identify basic features of mobile operating systems.	10.1, 10.2, 10.3, 10.4
2.6 Install and configure basic mobile device network connectivity and email.	10.1, 10.3, 10.4
2.7 Summarize methods and data related to mobile device synchronization.	10.1, 10.3, 10.4
3.0 Security	
3.1 Identify common security threats and vulnerabilities.	12.1
3.2 Compare and contrast common prevention methods.	12.2, 12.3
3.3 Compare and contrast differences of basic Windows OS security settings.	10.1, 10.3, 10.4, 12.3
3.4 Given a scenario, deploy and enforce security best practices to secure a workstation.	6.3, 9.4, 9.5, 12.2, 12.3
3.5 Compare and contrast various methods for securing mobile devices.	9.4, 9.5, 10.1, 10.3, 10.4, 12.2, 12.3
3.6 Given a scenario, use appropriate data destruction and disposal methods.	12.2
3.7 Given a scenario, secure SOHO wireless and wired networks.	8.2, 8.4, 8.5, 12.2
4.0 Software Troubleshooting	
4.1 Given a scenario, troubleshoot PC operating system problems with appropriate tools.	2.2, 6.4, 14.2
4.2 Given a scenario, troubleshoot common PC security issues with appropriate tools and best practices.	2.2, 6.3, 6.4, 14.2
4.3 Given a scenario, troubleshoot common mobile OS and application issues with appropriate tools.	10.5, 14.2
4.4 Given a scenario, troubleshoot common mobile OS and application security issues with appropriate tools.	10.2, 10.5, 14.2
5.0 Operational Procedures	
5.1 Given a scenario, use appropriate safety procedures.	13.1, 13.2, 13.3
5.2 Given a scenario with potential environmental impacts, apply the appropriate controls.	13.1, 13.2, 13.3
5.3 Summarize the process of addressing prohibited content/activity, and explain privacy, licensing and policy concepts.	13.1, 13.2, 13.3
5.4 Demonstrate proper communication techniques and professionalism.	13.1, 13.2, 13.3
5.5 Given a scenario, explain the troubleshooting theory.	13.1, 13.2, 13.3, 14.1, 14.2, 14.3, 14.4

IT Essentials v6 to CompTIA IT Fundamentals Objectives Correlation

CompTIA IT Fundamentals FC0-U51	IT Essentials Section
1.0 Software	
1.1 Compare and contrast common operating systems and their functions and features.	5.1, 5.2
1.2 Identify common programs, applications and their purpose.	6.1, 6.2, 6.3, 6.4
1.3 Given a scenario, use software management best practices.	6.1, 6.2, 6.3, 6.4
1.4 Identify the following alternative technologies and their purpose.	6.1, 6.2, 6.3, 6.4
1.5 Explain the basic software features and functions of wireless devices.	8.1, 8.2, 8.3, 9.1
2.0 Hardware	
2.1 Identify basic wired and wireless peripherals and their purpose.	8.1, 8.2, 8.3, 10.3, 11.2, 11.3
2.2 Compare and contrast common computer connector types.	8.1, 8.2, 8.3, 10.3
2.3 Identify the purpose of internal computer components.	8.1, 8.2, 8.3
3.0 Security	
3.1 Define basic security threats.	12.1, 12.2, 12.3, 12.4
3.2 Given a scenario, use security best practices.	12.1, 12.2, 12.3, 12.4
3.3 Given a scenario, use web-browsing best practices.	12.1, 12.2, 12.3, 12.4
4.0 Networking	
4.1 Given a scenario, set up and configure a basic SOHO router (wired/wireless).	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3, 8.4, 8.5
4.2 Compare and contrast cellular, wireless and wired data connections.	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3, 8.4, 8.5, 11.2
4.3 Compare and contrast different methods of sharing and storage.	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3, 8.4, 8.5
5.0 Basic IT Literacy	
5.1 Perform appropriate steps to set up a basic workstation.	4.1, 4.2, 6.1, 6.2, 6.3, 6.4, 14.1
5.2 Explain the basic methods of navigating an operating system.	4.1, 4.2, 6.1, 6.2, 6.3, 6.4, 14.2
5.3 Given a scenario, implement basic support concepts.	4.1, 4.2, 6.1, 6.2, 6.3, 6.4
5.4 Explain basic backup concepts.	12.2, 12.3, 14.4
5.5 Describe the importance and impact of various environmental and safety concepts.	2.1, 2.2, 12.3, 12.4, 14.1, 14.2, 14.3, 14.4

IT Essentials v6 to MTA: OS Fundamentals Objectives Correlation

Microsoft Technology Associate: Windows Operating System Fundamentals 98-349	IT Essentials Section
1.0 Understanding Operating System Configurations	
1.1 Configure Control Panel options.	6.1, 6.2, 6.3, 6.4, 10.1, 12.2
1.2 Configure desktop settings.	6.1, 6.2, 6.3, 6.4
1.3 Understand native applications and tools.	6.1, 6.2, 6.3, 6.4, 10.1, 10.4
1.4 Understand mobility.	9.1, 9.5, 10.2, 10.5
1.5 Understand remote management and assistance.	6.1, 6.2, 6.3, 6.4, 14.2
2.0 Installing and Upgrading Client Systems	
2.1 Identify Windows operating system editions.	5.1
2.2 Identify upgrade paths.	5.1
2.3 Understand installation types.	5.1, 5.2
2.4 Understand virtualized clients.	5.2, 6.2, 6.4, 8.1
3.0 Managing Applications	
3.1 Understand application installations .	6.1, 6.3, 6.4, 10.3
3.2 Understand user account control (UAC).	6.1, 6.3, 6.4, 10.2
3.3 Remove malicious software.	10.2, 12.2, 12.3, 14.4
3.4 Understand services.	6.1, 6.3, 6.4
3.5 Understand application virtualization.	6.2
4.0 Managing Files and Folders	
4.1 Understand file systems.	5.2
4.2 Understand file and print sharing.	6.1
4.3 Understand encryption.	6.1, 6.3, 12.3
4.4 Understand libraries.	5.2, 6.1
5.0 Managing Devices	
5.1 Connect devices.	1.1, 1.2, 1.2, 6.1
5.2 Understand storage.	1.1, 1.2, 1.2, 6.1, 6.3
5.3 Understand printing devices.	11.1, 11.2, 11.3, 11.4
5.4 Understand system devices.	1.1, 1.2, 1.2, 5.1, 6.1
6.0 Understanding Operating System Maintenance	
6.1 Understand backup and recovery methods.	6.3, 6.4, 12.3, 14.2
6.2 Understand maintenance tools.	6.3, 6.4, 12.4, 14.2
6.3 Understand updates.	6.3, 12.2, 14.2