

# CompTIA A+ 220-604 2006 Examination Objectives

## Introduction

In order to receive CompTIA A+ certification a candidate must pass two exams. The first exam is CompTIA A+ Essentials. Objectives for the CompTIA A+ Essentials examination are available for public review at [www.comptia.org](http://www.comptia.org).

The CompTIA A+ 220-604 examination is targeted for individuals who work or intend to work in settings with limited customer interaction where hardware related activities are emphasized. Job titles in some organizations which are descriptive of the role of this individual may be: Depot technician, bench technician, etc. Ideally, the CompTIA A+ 220-604 candidate has already passed the CompTIA A+ Essentials examination.

CompTIA recently convened a core of CompTIA A+ subject matter experts representing a diverse group of employers, educators and IT professionals which resulted in the revised CompTIA A+ examinations objectives. The skills and knowledge measured by these objectives were validated through a survey of more than 5,000 CompTIA A+ certified professionals and employers. The results of the survey were used in weighting the domains and ensuring that the weighting is representative of the relative importance of that content to the job requirements of an entry-level IT professional.

This examination blueprint includes domain weighting, test objectives, and example content. Example topics and concepts are included to clarify the test objectives and should not be construed as a comprehensive listing of all the content of this examination.

The table below lists the domains measured by this examination and the extent to which they are represented.

<b>Domain</b>	<b>Percentage of Examination</b>
1.0 Personal Computer Components	45%
2.0 Laptop and Portable Devices	20%
3.0 Printers and Scanners	20%
4.0 Security	5%
5.0 Safety and Environmental Issues	10%
<b>Total</b>	<b>100%</b>

## 1.0 Personal Computer Components

### 1.1 Install, configure, optimize and upgrade personal computer components

- Add, remove and configure internal storage devices, motherboards, power supplies, processor/CPU's, memory and adapter cards, including:
  - Drive preparation
  - Jumper configuration
  - Storage device power and cabling
  - Selection and installation of appropriate motherboard
  - BIOS set-up and configuration
  - Selection and installation of appropriate CPU
  - Selection and installation of appropriate memory
  - Installation of adapter cards including hardware and software/drivers
  - Configuration and optimization of adapter cards including adjusting hardware settings and obtaining network card connection
- Add, remove and configure systems

### 1.2 Identify tools, diagnostic procedures and troubleshooting techniques for personal computer components

- Identify and apply diagnostic procedures and troubleshooting techniques, for example:
  - Identify and isolate the problem using visual and audible inspection of components and minimum configuration
- Identify the steps used to troubleshoot components (e.g. check proper seating, installation, appropriate component, settings, current driver), for example:
  - Power supply
  - Processor/CPU's and motherboards
  - Memory
  - Adapter cards
- Recognize names, purposes, characteristics and appropriate application of tools, for example:
  - Multimeter
  - Anti-static pad and wrist strap
  - Specialty hardware/tools
  - Loop back plugs
  - Cleaning products (e.g. vacuum, cleaning pads)

### 1.3 Perform preventive maintenance of personal computer components

- Identify and apply common preventive maintenance techniques, for example:
  - Thermally sensitive devices (e.g. motherboards, CPU's, adapter cards, memory)
    - Cleaning
    - Air flow (e.g. slot covers, cable routing)
  - Adapter cards (e.g. driver/firmware updates)

## 2.0 Laptop and Portable Devices

### 2.1 Identify the fundamental principles of using laptops and portable devices

- Identify appropriate applications for laptop-specific communication connections, for example:
  - Bluetooth
  - Infrared devices
  - Cellular WAN
  - Ethernet
- Identify appropriate laptop-specific power and electrical input devices, for example:
  - Output performance requirements for amperage and voltage
  - Identify the major components of the LCD (e.g. inverter, screen, video card)

## **2.2 Install, configure, optimize and upgrade laptops and portable devices**

- Demonstrate the safe removal of laptop-specific hardware including peripherals, hot-swappable and non hot-swappable devices
- Identify the affect of video sharing on memory upgrades

## **2.3 Identify tools, diagnostic procedures and troubleshooting techniques for laptops and portable devices.**

- Use procedures and techniques to diagnose power conditions, video issues, keyboard and pointer issues and wireless card issues, for example:
  - Verify AC power (e.g. LED's, swap AC adapter)
  - Verify DC power
  - Remove unneeded peripherals
  - Plug in external monitor
  - Toggle Fn keys
  - Check LCD cutoff switch
  - Verify backlight functionality and pixilation
  - Stylus issues (e.g. digitizer problems)
  - Unique laptop keypad issues
  - Antenna wires

# **3.0 Printers and Scanners**

## **3.1 Identify the fundamental principles of using printers and scanners**

- Describe the processes used by printers and scanners including laser, inkjet, thermal, solid ink, and impact printers

## **3.2 Install, configure, optimize and upgrade printers and scanners**

- Identify the steps used in the installation and configuration processes for printers and scanners, for example:
  - Power and connect the device using network or local port
  - Install and update the device driver
  - Calibrate the device
  - Configure options and default settings
  - Print test page
- Install and configure printer/scanner upgrades including memory and firmware

## **3.3 Identify tools, diagnostic methods and troubleshooting procedures for printers and scanners**

- Gather data about printer/scanner problem
- Review and analyze data collected about printer/scanner problems
- Implement solutions to solve identified printer/scanner problems
- Identify appropriate tools used for troubleshooting and repairing printer/scanner problems
  - Multimeter
  - Screw drivers
  - Cleaning solutions
  - Extension magnet
  - Test patterns

## **3.4 Perform preventive maintenance of printer and scanner problems**

- Perform scheduled maintenance according to vendor guidelines (e.g. install maintenance kits, reset page counts)
- Ensure a suitable environment
- Use recommended supplies

## **4.0 Security**

### **4.1 Identify the names, purposes and characteristics of physical security devices and processes**

- Control access to PC's, servers, laptops and restricted spaces
  - Hardware
  - Operating systems

### **4.2 Install hardware security**

- Smart card readers
- Key fobs
- Biometric devices

## **5.0 Safety and Environmental Issues**

### **5.1 Identify potential hazards & proper safety procedures including power supply, display devices and environment (e.g. trip, liquid, situational, atmospheric hazards, high-voltage and moving equipment)**