

# Chapter 5



## Chapter 5

CompTIA Network+



# Episode 5.01

Episode title: **Introduction to Structured Cabling**

Objective: **1.3 Summarize the types of cables and connectors and explain which is the appropriate type for a solution**

## Key Terms



- Structured cabling
- Telecommunication closet/equipment room
- Horizontal run
- Work area
- Patch panel
- Patch cable
- TIA standards

## Quick Review



- Structured cabling defines how we install cabling
- TIA standards specify wiring standards for structured cabling
- Patch panels terminate one end of horizontal runs
- Patch cables connect switches to patch panels and computers to wall outlets



# Episode 5.02

Episode title: **Terminating Structured Cabling**

Objective: **1.3 Summarize the types of cables and connectors and explain which is the appropriate type for a solution**

## Key Terms



- 110-punchdown

## Quick Review



- RJ-45 crimps are used only on patch cables
- Horizontal runs are terminated with 110-punchdowns
- Patch panels and RJ-45 connectors also have Cat ratings



# Episode 5.03

Episode title: **Equipment Room**

Objective: **1.2 Explain the characteristics of network topologies and network types**  
**3.2 Explain the purpose of organizational documents and policies**



## Key Terms



- Main distribution frame (MDF)
- Intermediate distribution frame (IDF)
- U (or unit) is a standard height for components in a rack
- Demarc
- Demarc extension

## Quick Review



- The primary equipment room is called the main distribution frame (MDF)
- Rack-mounted equipment is standardized at 19" wide and a multiple of 1 ¾" tall (called a U or unit)
- The demarc separates the telecom company's property from your responsibility



# Episode 5.04

Episode title: **Alternative Distribution Panels**

Objective: **1.3 Summarize the types of cables and connectors and explain which is the appropriate type for a solution**

## Key Terms



- 66-punchdown block
- Fiber distribution panel

## Quick Review



- A 66-punchdown block is a very old patch panel, typically used in non-VOIP telephone systems
- A 110-punchdown block patch panel is the way to distribute copper wired networks
- A fiber distribution patch panel is used to distribute fiber-optic networks



# Episode 5.05

Episode title: **Testing Cable**

Objective: **5.2 Given a scenario, troubleshoot common cable connectivity issues and select the appropriate tools**

## Key Terms



- Wiremap
- Continuity
- Distance
- Time domain reflectometer (TDR)
- EIA/TIA -> horizontal runs less than 90m
- Optical TDR (OTDR)
- Near-end crosstalk (NEXT), far-end crosstalk (FEXT)
- Crosstalk

## Quick Review



- Understand how to read and interpret the wiremap feature of a cable tester
- Continuity testing will show if the cable has any breaks
- A time domain reflectometer (TDR) will show the length of the cable and help pinpoint mid-cable breaks





# Episode 5.06

Episode title: **Troubleshooting Structured Cabling, Part 1**

Objective: **5.2 Given a scenario, troubleshoot common cable connectivity issues and select the appropriate tools**

## Key Terms



- Check link light on the network card and switch
- Loopback address
- The loopback address is 127.0.0.1
- Loopback adapter

## Quick Review



- Patch cables and wall outlets are the most common part of structured cabling to fail
- Loopback adapters test the network card's ability to send and receive
- The loopback address is 127.0.0.1



# Episode 5.07

Episode title: **Troubleshooting Structured Cabling, Part 2**

Objective: **5.2 Given a scenario, troubleshoot common cable connectivity issues and select the appropriate tools**

## Key Terms



- Multimeter
- Voltage monitor
- Rack-mounted uninterruptible power supply (UPS)
- Time domain reflectometer (TDR)
- Interference

## Quick Review



- Multimeters test a variety of metrics such as voltage, current, resistance, and frequency
- Voltage monitors track and record drops in voltage which can show problems with power
- Time domain reflectometers (TDRs) are great tools to check for breaks in horizontal runs



# Episode 5.08

Episode title: **Using a Toner and Probe**

Objective: **5.2 Given a scenario, troubleshoot common cable connectivity issues and select the appropriate tools**

## Key Terms



- Fox & Hound



## Quick Review



- Tone generators and tone probes are used to locate cables and connections
- Tone generators create the signal for the probe
- Tone probes translate the signal into an audible tone



# Episode 5.09

Episode title: **Wired Connection Scenarios**

Objective: **5.2 Given a scenario, troubleshoot common cable connectivity issues and select the appropriate tools**

## Key Terms



- Attenuation

## Quick Review



- For jitters in VOIP and video streaming, consider buffering or increasing speed
- Make sure the patch cable specification is up-to-date with the network speed
- If switch lights are not blinking, try different ports or check if it's an uplink port