Appendix B

Exam Topics Cross-Reference

This appendix lists the exam topics associated with the CCNA 200-301 exam blueprint Version 1.1. Cisco lists the exam topics on its website. Even though changes to the exam topics are rare, you should always review those exam topics for any updates; check www.cisco.com/go/certifications and navigate to the correct exam.

Cisco organizes each list of exam topics by domains, which are major topic areas. Cisco states the percentage of the exam that should come from each domain, so you get some idea of the areas of importance. Traditionally, the score report you receive after taking the exam shows your percentage score in each domain.

This appendix includes two separate types of indices for exam topics:

- **CCNA 200-301 Exam Topic Order:** This section lists the CCNA 200-301 V1.1 exam topics in the same order Cisco lists them on its website, with a list of associated book chapters. This first list shows a cross-reference from each exam topic to the chapters that include at least some material about each topic.
- **Book Chapter Order Versus CCNA 200-301 Exam Topics:** This lists the same CCNA 200-301 V1.1 exam topics but indexed by chapter instead of exam topic. This section lists the chapters in this book, along with the exam topics that the chapter includes. This section basically relists the kind of information found on the first page of each chapter, just in condensed form in one place.

CCNA 200-301 Exam Topic Order

The CCNA 200-301 exam includes six major topic areas (domains), each with a percentage listed. Table B-1 lists the domains and their percentages.

Table B-1 CCNA 200-301 V1.1 Exam Topic Domains

Domain	Percentage
Domain 1: Network Fundamentals	20%
Domain 2: Network Access	20%
Domain 3: IP Connectivity	25%
Domain 4: IP Services	10%
Domain 5: Security Fundamentals	15%
Domain 6: Automation and Programmability	10%

Tables B-2 through B-7 list the exam topics within each of the six domains. Note that the *CCNA 200-301 Official Cert Guide, Volume 2*, Second Edition, covers some of the exam topics, while this book covers the rest.

Table B-2 CCNA 200-301 V1.1 Domain 1 Exam Topics (Network Fundamentals)

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
1.1 Explain the role and function of network components	2, 3, 5, 7	1, 10, 18, 21, 22
1.1.a Routers	3, 16, 18	
1.1.b Layer 2 and Layer 3 Switches	2, 5, 7, 18	
1.1.c Next-generation firewalls and IPS		10
1.1.d Access points		1

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
1.1.e Controllers		4, 22
1.1.f Endpoints		21
1.1.g Servers		21
1.1.h PoE		18
1.2 Describe characteristics of network topology architectures	2, 3	18–21
1.2.a Two-tier		18
1.2.b Three-tier		18
1.2.c Spine-leaf		21
1.2.d WAN	3	19
1.2.e Small office/home office (SOHO)	2, 16	18
1.2.f On-premises and cloud		20
1.3 Compare physical interface and cabling types	1, 2, 7	18
1.3.a Single-mode fiber, multimode fiber, copper	1, 2	18
1.3.b Connections (Ethernet shared media and point-to-point)	1, 2, 7	18
1.4 Identify interface and cable issues (collisions, errors, mismatch duplex, and/or speed)	7	
1.5 Compare TCP to UDP		5
1.6 Configure and verify IPv4 addressing and subnetting	6, 11–16, 18	

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
1.7 Describe private IPv4 addressing	11, 12, 17	14
1.8 Configure and verify IPv6 addressing and prefix	25–28	
1.9 Describe IPv6 address types	25–28	
1.9.a Unicast (global, unique local, and link local)	26–28	
1.9.b Anycast	26, 27	
1.9.c Multicast	27	
1.9.d Modified EUI 64	27, 28	
1.10 Verify IP parameters for Client OS (Windows, Mac OS, Linux)	19	
1.11 Describe wireless principles		1, 3
1.11.a Nonoverlapping Wi-Fi channels		1
1.11.b SSID		1
1.11.c RF		1
1.11.d Encryption		3
1.12 Explain virtualization fundamentals (server virtualization, containers, and VRFs)		20
1.13 Describe switching concepts	5, 8	
1.13.a MAC learning and aging	5, 8	
1.13.b Frame switching	5, 8	
1.13.c Frame flooding	5, 8	

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
1.13.d MAC address table	5, 8	

Table B-3 CCNA 200-301 V1.1 Domain 2 Exam Topics (Network Access)

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
2.1 Configure and verify VLANs (normal range) spanning multiple switches	8, 18	
2.1.a Access ports (data and voice)	8	
2.1.b Default VLAN	8	
2.1.c InterVLAN Connectivity	8, 18	
2.2 Configure and verify interswitch connectivity	8	
2.2.a Trunk ports	8	
2.2.b 802.1Q	8	
2.2.c Native VLAN	8	
2.3 Configure and verify Layer 2 discovery protocols (Cisco Discovery Protocol and LLDP)		13
2.4 Configure and verify (Layer 2/Layer 3) EtherChannel (LACP)	8–10, 18	
2.5 Interpret basic operations of Rapid PVST+ Spanning Tree Protocol	5, 9, 10	
2.5.a Root port, root bridge (primary/secondary), and other port names	9, 10	
2.5.b Port states and roles	9, 10	

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
2.5.c PortFast	9, 10	
2.5.d Root Guard, loop guard, BPDU filter, BPDU guard	9, 10	
2.6 Compare Cisco Wireless Architectures and AP modes		2
2.7 Describe physical infrastructure connections of WLAN components (AP, WLC, access/trunk ports, and LAG)		4
2.8 Describe network device management access (Telnet, SSH, HTTP, HTTPS, console, and TACACS+/RADIUS, and cloud managed)	4, 6, 20	4
2.9 Interpret the wireless LAN GUI configuration for client connectivity, such as WLAN creation, security settings, QoS profiles, and advanced settings		4

Table B-4 CCNA 200-301 Domain 3 Exam Topics (IP Connectivity)

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
3.1 Interpret the components of routing table	17, 29	
3.1.a Routing protocol code	17, 29	
3.1.b Prefix	17, 29	
3.1.c Network mask	17, 29	
3.1.d Next hop	17, 29	

Exam Topic	Vol 1 Chapter(s)	Vol 2 Chapter(s)
3.1.e Administrative distance	17, 24, 29	
3.1.f Metric	17	
3.1.g Gateway of last resort	17	
3.2 Determine how a router makes a forwarding decision by default	17, 21–24	
3.2.a Longest prefix match	17, 24	
3.2.b Administrative distance	17, 21–24	
3.2.c Routing protocol metric	21, 21–24	
3.3 Configure and verify IPv4 and IPv6 static routing	17, 20, 29	
3.3.a Default route	17, 20, 29	
3.3.b Network route	17, 20, 29	
3.3.c Host route	17, 20, 29	
3.3.d Floating static	17, 20, 29	
3.4 Configure and verify single area OSPFv2	21–24	
3.4.a Neighbor adjacencies	21–24	
3.4.b Point-to-point	21–24	
3.4.c Broadcast (DR/BDR selection)	21–24	
3.4.d Router ID	21–24	
3.5 Describe the purpose, functions, and concepts of first hop redundancy protocols		16

Table B-5 CCNA 200-301 V1.1 Domain 4 Exam Topics (IP Services)

Exam Topics	Vol 1 Chapter(s)	Vol 2 Chapter(s)
4.1 Configure and verify inside source NAT using static and pools		14
4.2 Configure and verify NTP operating in a client and server mode		13
4.3 Explain the role of DHCP and DNS within the network	19	5
4.4 Explain the function of SNMP in network operations		17
4.5 Describe the use of syslog features including facilities and severity levels		13
4.6 Configure and verify DHCP client and relay	6, 19	
4.7 Explain the forwarding per-hop behavior (PHB) for QoS such as classification, marking, queuing, congestion, policing, and shaping		15
4.8 Configure network devices for remote access using SSH	6	10
4.9 Describe the capabilities and functions of TFTP/FTP in the network		17

Table B-6 CCNA 200-301 Domain 5 Exam Topics (Security Fundamentals)

Exam Topics	Vol 1 Chapter(s)	Vol 2 Chapter(s)
5.1 Define key security concepts (threats, vulnerabilities, exploits, and mitigation techniques)		9
5.2 Describe security program elements (user awareness, training, and physical access control)		9
5.3 Configure device access control using local passwords	6	10
5.4 Describe security password policies elements, such as management, complexity, and password alternatives (multifactor authentication, certificates, and biometrics)		9
5.5 Describe IPsec remote access and site-to-site VPNs		19
5.6 Configure and verify access control lists		6, 7, 8
5.7 Configure Layer 2 security features (DHCP snooping, dynamic ARP inspection, and port security)		11, 12
5.8 Compare authentication, authorization, and accounting concepts		9
5.9 Describe wireless security protocols (WPA, WPA2, and WPA3)		3
5.10 Configure and verify WLAN within the GUI using WPA2 PSK		4

Table B-7 CCNA 200-301 V1.1 Domain 6 Exam Topics (Programmability and Automation)

Exam Topics	Vol 1 Chapter(s)	Vol 2 Chapter(s)
6.1 Explain how automation impacts network management		21
6.2 Compare traditional networks with controller-based networking		
6.3 Describe controller-based, software-defined architecture (overlay, underlay, and fabric)		21
6.3.a Separation of control plane and data plane		21, 22
6.3.b Northbound and Southbound APIs		21, 22
6.4 Explain AI (generative and predictive) and machine learning in network operations		22
6.5 Describe characteristics of REST-based APIs (authentication types, CRUD, HTTP verbs, and data encoding)		23
6.6 Recognize the capabilities of configuration management mechanisms such as Ansible and Terraform		24
6.7 Recognize components of JSON-encoded data		23

Book Chapter Order Versus CCNA 200-301 Exam Topics

Cisco organizes its exam topics based on the outcome of your learning experience, which is typically not a reasonable order for building the content of a book or course. This section lists the book chapters in sequence, with the exam topics covered in each chapter.

Table B-8 CCNA 200-301 V1.1: Chapter-to-Exam Topic Mapping

Book Chapter	Exam Topics Covered
Part I: Introduction to Networking	
Chapter 1: Introduction to TCP/IP Networking	**1.0 Network Fundamentals** 1.3 Compare physical interface and cabling types *1.3.a Single-mode fiber, multimode fiber, copper* *1.3.b Connections (Ethernet shared media and point-to-point)*
Chapter 2: Fundamentals of Ethernet LANs	**1.0 Network Fundamentals** 1.1 Explain the role and function of network components *1.1.b Layer 2 and Layer 3 switches* 1.2 Describe characteristics of network topology architectures *1.2.e Small office/home office (SOHO)* 1.3 Compare physical interface and cabling types *1.3.a Single-mode fiber, multimode fiber, copper* *1.3.b Connections (Ethernet shared media and point-to-point)*

Book Chapter	Exam Topics Covered
Chapter 3: Fundamentals of WANs and IP Routing	**1.0 Network Fundamentals** 1.1 Explain the role and function of network components *1.1.a Routers* 1.2 Describe characteristics of network topology architectures *1.2.d WAN*
Part II: Implementing Ethernet LANs	
Chapter 4: Using the Command-Line Interface	**2.0 Network Access** 2.8 Describe network device management access (Telnet, SSH, HTTP, HTTPs, console, TACACS+/RADIUS, and cloud managed)
Chapter 5: Analyzing Ethernet LAN Switching	**1.0 Network Fundamentals** 1.1 Explain the role and function of network components *1.1.b Layer 2 and Layer 3 switches* 1.13 Describe switching concepts *1.13.a MAC learning and aging* *1.13.b Frame switching* *1.13.c Frame flooding* *1.13.d MAC address table* **2.0 Network Access** 2.5 Interpret basic operations of Rapid PVST+ Spanning Tree Protocol
Chapter 6: Configuring Basic Switch Management	**1.0 Network Fundamentals** 1.6 Configure and calculate IPv4 addressing and subnetting **2.0 Network Access**

Book Chapter	Exam Topics Covered
	2.8 Describe network device management access (Telnet, SSH, HTTP, HTTPs, console, TACACS+/RADIUS, and cloud managed) **4.0 IP Services** 4.6 Configure and verify DHCP client and relay 4.8 Configure network devices for remote access using SSH **5.0 Security Fundamentals** 5.3 Configure device access control using local passwords
Chapter 7: Configuring and Verifying Switch Interfaces	**1.0 Network Fundamentals** 1.1 Explain the role and function of network components *1.1.b Layer 2 and Layer 3 Switches* 1.3 Compare physical interface and cabling types *1.3.b Connections (Ethernet shared media and point-to-point)* 1.4 Identify interface and cable issues (collisions, errors, mismatch duplex, and/or speed)
Part III: Implementing VLANs and STP	
Chapter 8: Implementing Ethernet Virtual LANs	**1.0 Network Fundamentals** 1.13 Describe switching concepts *1.13.a MAC learning and aging* *1.13.b Frame switching* *1.13.c Frame flooding* *1.13.d MAC address table*

Book Chapter	Exam Topics Covered
	2.0 Network Access 2.1 Configure and verify VLANs (normal range) spanning multiple switches *2.1.a Access ports (data and voice)* *2.1.b Default VLAN* *2.1.c InterVLAN Connectivity*
	2.2 Configure and verify interswitch connectivity *2.2.a Trunk ports* *2.2.b 802.1Q* *2.2.c Native VLAN*
Chapter 9: Spanning Tree Protocol Concepts	**2.0 Network Access** 2.4 Configure and verify (Layer 2/Layer 3) EtherChannel (LACP) 2.5 Interpret basic operations of Rapid PVST+ Spanning Tree Protocol *2.5.a Root port, root bridge (primary/secondary), and other port names* *2.5.b Port states and roles* *2.5.c PortFast* *2.5.d Root Guard, loop guard, BPDU filter, BPDU guard*
Chapter 10: RSTP and EtherChannel Configuration	**2.0 Network Access** 2.4 Configure and verify (Layer 2/Layer 3) EtherChannel (LACP) 2.5 Interpret basic operations of Rapid PVST+ Spanning Tree Protocol *2.5.a Root port, root bridge (primary/secondary), and other port names*

Book Chapter	Exam Topics Covered
	2.5.b Port states and roles *2.5.c PortFast* *2.5.d Root Guard, loop guard, BPDU filter, BPDU guard*
Part IV: IPv4 Addressing	
Chapter 11: Perspectives on IPv4 Subnetting	**1.0 Network Fundamentals** 1.6 Configure and verify IPv4 addressing and subnetting 1.7 Describe the need for private IPv4 addressing
Chapter 12: Analyzing Classful IPv4 Networks	**1.0 Network Fundamentals** 1.6 Configure and verify IPv4 addressing and subnetting 1.7 Describe the need for private IPv4 addressing
Chapter 13: Analyzing Subnet Masks	**1.0 Network Fundamentals** 1.6 Configure and verify IPv4 addressing and subnetting
Chapter 14: Analyzing Existing Subnets	**1.0 Network Fundamentals** 1.6 Configure and verify IPv4 addressing and subnetting
Chapter 15: Subnet Design	**1.0 Network Fundamentals** 1.6 Configure and verify IPv4 addressing and subnetting
Part V: IPv4 Routing	
Chapter 16: Operating Cisco Routers	**1.0 Network Fundamentals** 1.1 Explain the role and function of network components

Book Chapter	Exam Topics Covered
	1.1.a Routers 1.2 Describe characteristics of network topology architectures *1.2.e Small office/home office (SOHO)* 1.6 Configure and verify IPv4 addressing and subnetting
Chapter 17: Configuring IPv4 Addresses and Static Routes	**1.0 Network Fundamentals** 1.6 Configure and verify IPv4 addressing and subnetting **3.0 IP Connectivity** 3.1 Interpret the components of routing table *3.1.a Routing protocol code* *3.1.b Prefix* *3.1.c Network mask* *3.1.d Next hop* *3.1.e Administrative distance* *3.1.f Metric* *3.1.g Gateway of last resort* 3.2 Determine how a router makes a forwarding decision by default *3.2.a Longest prefix match* *3.2.b Administrative distance* 3.3 Configure and verify IPv4 and IPv6 static routing *3.3.a Default route* *3.3.b Network route* *3.3.c Host route* *3.3.d Floating static*

Book Chapter	Exam Topics Covered
Chapter 18: IP Routing in the LAN	**1.0 Network Fundamentals** 1.1 Explain the role and function of network components *1.1.a Routers* *1.1.b Layer 2 and Layer 3 Switches* 1.6 Configure and verify IPv4 addressing and subnetting **2.0 Network Access** 2.1 Configure and verify VLANs (normal range) spanning multiple switches *2.1.c InterVLAN connectivity* 2.4 Configure and verify (Layer 2/Layer 3) EtherChannel (LACP)
Chapter 19: IP Addressing on Hosts	**1.0 Network Fundamentals** 1.10 Verify IP parameters for Client OS (Windows, Mac OS, Linux) **4.0 IP Services** 4.3 Explain the role of DHCP and DNS within the network 4.6 Configure and verify DHCP client and relay
Chapter 20: Troubleshooting IPv4 Routing	**2.0 Network Access** 2.8 Describe network device management access (Telnet, SSH, HTTP, HTTPS, console, TACACS+/RADIUS, and cloud managed) **3.0 IP Connectivity** 3.3 Configure and verify IPv4 and IPv6 static routing *3.3.a Default route* *3.3.b Network route*

Book Chapter	Exam Topics Covered
	3.3.c Host route *3.3.d Floating static*
Part VI: OSPF	
Chapter 21: Understanding OSPF Concepts	**3.0 IP Connectivity** 3.2 Determine how a router makes a forwarding decision by default *3.2.b Administrative distance* *3.2.c Routing protocol metric* 3.4 Configure and verify single area OSPFv2 *3.4.a Neighbor adjacencies* *3.4.b Point-to-point* *3.4.c Broadcast (DR/BR selection)* *3.4.d Router ID*
Chapter 22: Implementing Basic OSPF Features	**3.0 IP Connectivity** 3.2 Determine how a router makes a forwarding decision by default *3.2.b Administrative distance* *3.2.c Routing protocol metric* 3.4 Configure and verify single area OSPFv2 *3.4.a Neighbor adjacencies* *3.4.c Broadcast (DR/BR selection)* *3.4.d (Router ID)*
Chapter 23: Implementing Optional OSPF Features	**3.0 IP Connectivity** 3.2 Determine how a router makes a forwarding decision by default *3.2.b Administrative distance* *3.2.c Routing protocol metric* 3.4 Configure and verify single area OSPFv2

Book Chapter	Exam Topics Covered
	3.4.a Neighbor adjacencies *3.4.b Point-to-point* *3.4.c Broadcast (DR/BR selection)* *3.4.d Router ID*
Chapter 24: OSPF Neighbors and Route Selection	**3.0 IP Connectivity** 3.1 Interpret components of the routing table *3.1.e Administrative distance* 3.2 Determine how a router makes a forwarding decision by default *3.2.a Longest prefix match* *3.2.b Administrative distance* *3.2.c Routing protocol metric* 3.4 Configure and verify single area OSPFv2 *3.4.a Neighbor adjacencies* *3.4.b Point-to-point* *3.4.c Broadcast (DR/BR selection)* *3.4.d Router ID*
Part VII: IP Version 6	
Chapter 25: Fundamentals of IP Version 6	**1.0 Network Fundamentals** 1.8 Configure and verify IPv6 addressing and prefix
Chapter 26: IPv6 Addressing and Subnetting	**1.0 Network Fundamentals** 1.8 Configure and verify IPv6 addressing and prefix 1.9 Describe IPv6 address types

Book Chapter	Exam Topics Covered
Chapter 27: Implementing IPv6 Addressing on Routers	**1.0 Network Fundamentals** 1.8 Configure and verify IPv6 addressing and prefix 1.9 Compare and contrast IPv6 address types *1.9.a Unicast (global, unique local, and link local)* *1.9.b Anycast* *1.9.c Multicast* *1.9.d Modified EUI 64*
Chapter 28: Implementing IPv6 Addressing on Hosts	**1.0 Network Fundamentals** 1.8 Configure and verify IPv6 addressing and prefix 1.9 Describe IPv6 address types *1.9.a Unicast (global, unique local, and link local)* *1.9.d Modified EUI 64*
Chapter 29: Implementing IPv6 Routing	**3.0 IP Connectivity** 3.1 Interpret components of the routing table *3.1.a Routing protocol code* *3.1.b Prefix* *3.1.c Network mask* *3.1.d Next hop* *3.1.e Administrative distance* 3.3 Configure and verify IPv4 and IPv6 static routing *3.3.a Default route* *3.3.b Network route* *3.3.c Host route*

Book Chapter	Exam Topics Covered
	3.3.d Floating static