

# Cisco CCNA Discovery

## Grades 11-12

**Units of Credit:** One Year (Elective)

**Prerequisites:** None

### **Course Description:**

The Cisco CCNA Discovery curriculum provides general networking theory, practical experience, and opportunities for career exploration and soft-skills development. The curriculum teaches networking based on application, covering networking concepts within the context of network environments students may encounter in their daily lives – from small office and home office (SOHO) networking to more complex enterprise and theoretical networking models later in the curriculum.

CCNA Discovery is designed for students with basic PC skills and foundational math and problem solving skills. The curriculum offers an engaging learning experience for more visual and kinetic learners. Many interactive activities are embedded in all of the courses to break up the text and help reinforce student comprehension. In addition, a large number of labs encourage additional hands-on practice. CCNA Discovery can be delivered as an independent curriculum or integrated into a broader course of study, such as technology or continuing education programs. CCNA Discovery helps prepare students for entry-level career opportunities, continuing education, and globally-recognized Cisco CCENT and CCNA certifications.

### **Topics:**

- Personal Computer Hardware
- Operating Systems
- Connecting to the Network
- Connecting to the Internet Through an ISP
- Network Addressing
- Network Services
- Wireless Technologies
- Basic Security
- Troubleshooting Your Network
- Course Summary: Putting It All Together

*NOTE: Throughout this document, learning target types are identified as knowledge (“K”), reasoning (“R”), skill (“S”), or product (“P”).*

**STANDARD 1: Students experience various career opportunities and assess personal career pathways.**

### **Benchmark 1:**

Explore and identify personal interests, aptitudes, and abilities and develop strategies to achieve tentative career goals.

### **Learning Targets (Type):**

1. I can use Montana Career Information Systems (MCIS) and/or other systems or web resources to investigate and evaluate my personal interests, aptitudes and abilities. (S)
2. I can formulate tentative career goals. (R)
3. I can evaluate approaches for meeting my goals. (R)

**Benchmark 2:**

Utilize local resources to research career plans.

**Learning Targets (Type):**

1. I can identify local resources to develop career plans. (K)
2. I can contact my school career counselor or teacher to pursue career pathways. (S)

**Benchmark 3:**

Recognize the interrelationships of family, community, career, and leisure roles.

**Learning Targets (Type):**

1. I can describe the importance of balance between family and community in regards to career and leisure activities. (K)
2. I can compare and contrast the needs of career and leisure activities and how they relate to and/or affect family and community. (R)
3. I can demonstrate employ-ability and social skills relative to careers. (S)

**STANDARD 2: Students demonstrate an understanding and apply principles of Resource Management (i.e., financial, time, personal management)**

**Benchmark 1:**

Prepare a budget and keep financial records.

**Learning Targets (Type):**

1. I can research and report cost of materials and time. (R,S)
2. I can document financial inputs and outputs. (S)
3. I can identify the necessity to maintain accurate financial records. (K)
4. I can stay within a fixed budget. (S,P)

**Benchmark 2:**

Prioritize, allocate time, prepare and follow schedules to complete a project.

**Learning Targets (Type):**

1. I can estimate the required time to complete a project. (R)
2. I can prioritize resources, equipment and tasks. (R)
3. I can reflect upon completion. (K)

**Benchmark 3:**

Apply appropriate time to task.

**Learning Targets (Type):**

1. I can implement a time schedule for task completion. (S)

**Benchmark 4:**

Use physical resources wisely to accomplish a goal.

**Learning Targets (Type):**

1. I can identify the resources necessary to accomplish the task. (K)
2. I can maintain the tools of the trade. (S)
3. I can maximize the use of my resources. (S)

**STANDARD 3: Students acquire and utilize personal and leadership skills to become successful, productive citizens.**

**Benchmark 1:**

Demonstrate active leadership skills by participation in group activities and projects.

**Learning Targets (Type):**

1. I can investigate various leadership styles. (*R*)
2. I can apply leadership styles in group activities and projects. (*R*)
3. I can work as part of a team to design, build, analyze, and test group projects. (*S*)
4. I can develop personal and professional leadership skill through participation in the SkillsUSA student organization activities.(CTSO). (*S*)

**Benchmark 2:**

Demonstrate positive personal and work ethics.

**Learning Targets (Type):**

1. I can arrive on time for class and work. (*S*)
2. I can develop personal and work related goals. (*K,P*)
3. I can describe ethical behavior in the workplace. (*K*)
4. I can complete a project by given project completion deadlines. (*K,R,S*)
5. I can manage my time so that I can complete assignments and projects by using my time wisely each and every class period. (*K,R,S*)

**Benchmark 3:**

Demonstrate skills to be a productive citizen.

**Learning Targets (Type):**

1. I can develop professional relationships with community members. (*S*)
2. I can contribute to my community in a positive manner. (*S,P*)

**Benchmark 4:**

Apply self-esteem building practices.

**Learning Targets (Type):**

1. I can define and provide evidence of my strengths in my career interest areas. (*K,S*)
2. I can persevere through set backs and stay focused on my goals. (*S*)

**Benchmark 5:**

Demonstrate appreciation for diverse perspective needs and characteristics.

**Learning Targets (Type):**

1. I can develop a working relationship with diverse populations. (*K,S*)
2. I can demonstrate communication skills that contribute to positive relationships. (*S*)
3. I can work to understand diverse points of view. (*R*)

**Benchmark 6:**

Practice several methods of effective communication.

**Learning Targets (Type):**

1. I can demonstrate good listening skills. (*S*)
2. I can effectively communicate verbally through collaborative projects. (*S,P*)
3. I can develop quality written professional communications. (*P*)

**STANDARD 4: Students acquire and demonstrate current technical skills leading to an occupation.**

**Benchmark 1:**

Practice technical skills and procedures required for an occupation.

**Learning Targets (Type):**

1. I can demonstrate knowledge and skill with computer fundamentals such as system

components, memory, connections, PC assembly/disassembly and maintenance procedures. (K,S)

2. I can demonstrate knowledge and skill with software applications related to operating systems, diagnostic software and platforms. (K,S)
3. I can develop skills, knowledge and understanding of local area networks in topics such as topologies, network design, software, protocols and OSI layers. (K,S)
4. I can develop knowledge and understanding of peer-to-peer network concepts. (S)
5. I can develop knowledge and skills related to drive components and related problems and applications. (K,S)
6. I can set up a personal computer system, including the operating system, interface cards, and peripheral devices. (K,S)
7. I can plan and install a small network connecting to the Internet. (K,S)
8. I can configure a server to share resources and provide common Web services. (K,R,S)

#### **Benchmark 2:**

Practice safe and appropriate use of technology.

#### **Learning Targets (Type):**

1. I can engage in meaningful, hands-on, minds-on and conceptual based computer systems related concepts. (S)
2. I can demonstrate and develop skills with wide area networks including e-mail, Internet, network topologies, components, routers, WAN services and other related content. (S)
3. I can develop competencies in the safe and efficient use of the tools, machines, materials, and processes of PC technology. (S)
4. I can share resources such as files and printers among multiple computers. (S)
5. I can recognize and mitigate security threats from a home network. (S)
6. I can understand the structure of the Internet and how communication occurs between hosts. (S)

#### **Benchmark 3:**

Select the appropriate tools, equipment, and procedures for the task.

#### **Learning Targets (Type):**

1. I can select the correct tools and equipment to most efficiently solve problems I encounter. (K,R,S)
2. I can demonstrate knowledge and understanding of service equipment and digital techniques. (K,S)
3. I can use tools, machines, and equipment to repair PCs. (K,R,S)
4. I can creatively solve problems by considering the tools, equipment and resources available to successfully complete projects within the given guidelines. (K,R,S)
5. I can develop skills necessary to work with others and solve problems. (S)

#### **Benchmark 4:**

Manage and maintain technological tools and follow troubleshooting protocol.

Apply technical information to a variety of sources.

#### **Learning Targets (Type):**

1. I can develop skills knowledge and understanding of dial up communications concepts such as phone lines, communication software, file transfer and troubleshooting. (K,S)
2. I can demonstrate knowledge and understanding of basic I/O such as keyboards, video, monitors, troubleshooting and other I/O components. (K,S)

3. I can troubleshoot network and Internet connectivity. *(R,S)*
4. I can configure an integrated wireless access point and wireless client. *(K,R,S)*
5. I can install, configure, and troubleshoot Cisco IOS devices. *(S)*
6. I can implement basic WAN connectivity using Telco services. *(S)*

**Benchmark 5:**

**Learning Targets (Type):**

1. I can apply concepts from mathematics, science, communications and computer skills in the context of computer systems technology. *(K,R,S)*
2. I can demonstrate knowledge and understanding of computer systems careers, employment outlook and post-secondary education opportunities. *(K,S)*
3. I can plan a basic wired infrastructure to support network traffic. *(K,R,S)*
4. I can demonstrate proper disaster-recovery procedures and perform server backups. *(K,S)*

**STANDARD 5: Students know and demonstrate the requirements of the workplace through authentic application.**

**Benchmark 1:**

Practice and demonstrate academic and technical skills to a workplace setting.

**Learning Targets (Type):**

1. I can practice, and demonstrate my technical workplace skills in my school lab. *(S)*
2. I can research, write and present on the technical content utilizing academic skills found in workplace settings. *(R,S,P)*

**Benchmark 2:**

Apply the concepts of entrepreneurship.

**Learning Targets (Type):**

1. I can explain the concepts of entrepreneurship. *(K)*
2. I can demonstrate the concepts of entrepreneurship through a unique project. *(R,S)*
3. I can present my unique project to an authentic audience. *(S,P)*

**Benchmark 3:**

Identify possible outcomes and consequences of decisions.

**Learning Targets (Type):**

1. I can identify possible consequences of carelessness and horseplay. *(K)*
2. I can explain potential outcomes of not following directions, (i.e. safety, guidelines, rubrics). *(R)*

**Benchmark 4:**

Use acceptable industry standard equipment in a school setting.

**Learning Targets (Type):**

1. I can successfully use acceptable industry standard equipment to produce an authentic product within budget constraints. *(S,R,P)*