6.3 Networking Media

As you study this section, answer the following questions:

- What are the advantages and disadvantages of coaxial cable?
- Why are wires twisted together in twisted pair cables?
- What is the difference between STP and UTP cabling?
- What is the difference between Cat5 and Cat5e cabling?
- Which connector type and cable grade is used to connect a cable modem to the internet connection?
- What advantages do fiber optic cables offer over twisted pair or other media choices? What are the disadvantages of implementing fiber optic cables?
- What is the difference between single-mode cables and multi-mode cables?
- How can you tell the difference between an ST connector and an SC connector?

In this section, you will learn to:

- Select and install a network adapter

Key terms for this section include the following:

Term	Definition
Coaxial cable	Carries broadband internet signals.
Inner conductor	Carries data signals in cables.
Insulator	Surrounds inner cable conductor and keeps signal separated from the mesh conductor.
Braided mesh conductor	Functions as a second physical channel and as a ground.
Sheath	Encases a cable to protect it from external elements.
RG-59	A coaxial cable specification used for CCTV video systems.
RG-6	A coaxial cable specification used for cable TV, satellite TV, and broadband cable internet.
Unshielded twisted pair (UTP) cable	A cable generally used for Ethernet cables and telephone wires.
Shielded twisted pair (STP) cable	A cable that provides more EMI protection, but is more expensive than UTP cable..
Category 5e (cat 5e) cable	A cable that supports gigabit Ethernet.
Category 6 (cat 6) cable	A gigabit Ethernet cable with 10 Gbps speeds limited to cable length less than 55 meteres.
Category 6a (cat 6a) cable	A gigabit Ethernet cable with 10 Gbps speeds limited to cable length less than

	100 meteres.
Category 7 (cat 7) cable	Has the strictest specifications for crosstalk and noise of the Cat cables.
RJ-11 connector	A connector with 4 connectors, 2 pairs of wires, and a locking tab; used primarily for telephone wiring.
RJ-45 connector	A connector with 8 connectors, 4 pairs of wires, and a locking tab; used for Ethernet networks.
Patch twisted pair cable	Uses the same wire configuration on each connector end.
Crossover twisted pair cable	Arrange wires in the first connector using T568A standard and the second connector the T568B standard.
Fiber optic cable	Carries broadband internet signals.
Central core	Carries the signal.
Cladding	Maintains the signal in the center of the core.
Protective layer	Prevents the cladding and central core from breaking.
Plastic sheath	Encases everything and protects the cable.
Single mode cable	Transfers data using a single light ray.
Multi-mode	Transfers data using multiple light rays.
MT-RJ connector	Used with both single and multi-mode cabling.

This section helps you prepare for the following certification exam objectives:

Exam	Objective

CompTIA 220-1001	3.1 Explain basic cable types, features, and their purposes
	▪ Network cables
	  ▪ Ethernet
	  ▪ Cat 5
	  ▪ Cat 5e
	  ▪ Cat 6
	  ▪ Plenum
	  ▪ Shielded twisted pair
	  ▪ Unshielded twisted pair
	  ▪ Speed and transmission limitations
	  ▪ 568A/B
	  ▪ Fiber
	  ▪ Coaxial
	
	3.2 Identify common connector types

	▪ RJ-11 ▪ RJ-45 ▪ RS-232 ▪ RG-59 ▪ RG-6