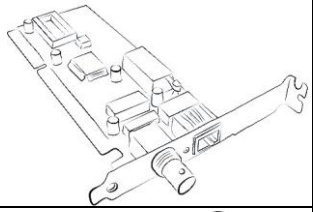
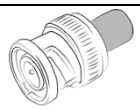
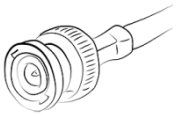
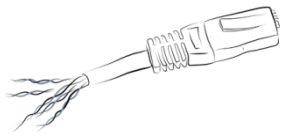
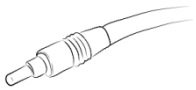
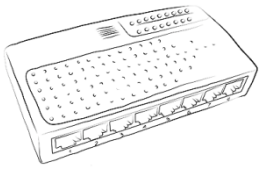
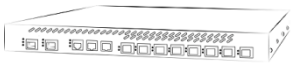
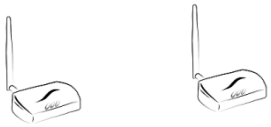
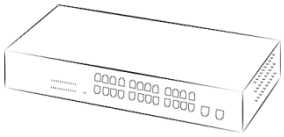
Network Hardware - Reading

Network Interface Card (NIC) 	A **Network Interface Card** (**NIC** – pronounced Nick) connects the computer to the **transmission medium** for a network (a cable or wireless signal). In this case it will connect to either an older coaxial cable or a **UTP copper cable**. Most NICs are now integrated into the motherboard or device.
Terminator 	A **terminator** connects to both ends of a **coaxial cable**. It absorbs the signal so that it doesn't bounce back. With a coaxial cable this forms a **bus network**.
Coaxial cable 	A **coaxial cable** is connected to the **terminator** and **NIC** with a **BNC connector**. It contains a central core wire surrounded by an insulator that is then surrounded by a metal shield and plastic for protection. It works in the same way as a TV cable.
Copper cable Unshielded Twisted Pair (UTC) 	A **copper cable** contains a number of wires. These are twisted together to prevent electromagnetic interference. This is called **Unshielded Twisted Pair** (**UTP**) cable as the wires are twisted in pairs. This cable is most often used in **LANs** for schools and businesses today.
Fibre optic cable 	A **fibre optic cable** sends light through glass which internally reflects it all the way down the cable. It can travel over larger distances than copper cable and has more bandwidth. It is often used to connect a LAN to the Internet or another LAN.
Hubs 	A **hub** is used to connect many computers together. They **broadcast** the input signal from one port to all other ports on the hub. If there is too much **traffic** then the **network packets** will **collide**, slowing down the network speed. A hub is used to make a **star network**. Each computer requires its own cable to be connected directly to the hub.
Routers 	A **router** will forward **data packets** between different computer networks. The router reads the **final destination address** of the packet and then sends it to a router that is closer to the destination.
Wireless router 	**Wireless networks** use **Wi-Fi** (**802.11** standard) to connect. This means that cables don't need to be laid; however, it does create **security risks**. **Encryption** can prevent outside users from reading the **data packets**. Wireless networks tend to be slower than wired ones. The image shows a **wireless router**.
Bridges 	**Bridges** connect two **network segments** together. These could be two LANs or two parts of a LAN. For instance a **wireless repeater** could be used as a bridge between two network segments on a LAN.
Switches 	**Switches** are an advanced form of **network hub**. When a message arrives the switch transmits it to the destination device. By switching the connection between **ports**, devices can make use of the full **bandwidth** without **collisions**.