Routers and cabling lesson guide | CIT-115   name: _____

1. Navigate to technologyrediscovery.net >> CIT-115 >> Networking stations >> Station 3: 5 Cats
2. Procure a length of Cat 5 cable from your instructor, two terminators, and two colored terminator covers. Be sure that the outer insulation is stripped off about 3 inches on the end
3. Dedicate a few minutes to reading about the composition of Cat 5 cable and respond to these questions:
   (a) How many strands of copper are in a Cat 5 cable?

   (b) Why is it called twisted pair cable?

   (c) Why are the pairs twisted as they are? (This is a little tricky)

   (d) What is the correct name for the terminators commonly attached to Cat 5 cable? What is the common incorrect name for these connectors?

   (e) Navigate to the article linked in the Cat 5 Wikipedia called Modular Connectors. Navigate to the section called 8P8C. What does this name mean?

   (f) What is the difference between a "patch" cable and a "crossover" cable? Is this still relevant today, why or why not?

4. Review the instruction video and work with your peers to correctly install connectors on both ends of your Cat 5 cable and test it using the cable tester supplied by your instructor
   WRT Routers!
5. Secure a WRT router from your instructor. Turn the device over and read all the labels carefully. What model number and version is your device?

6. Navigate on the WWW to find a PDF copy of the user manual for your specific model and version of router. Print it off and staple it.
7. Study the back of the router and on a separate sheet of paper, create a diagram of each of the ports, buttons, and connections available on the back of the router. On your diagram, be sure to label the following:
   (a) Which port is used for connection to the WAN?
   (b) What is the proper input voltage for your router?
8. Log into one of the CCAC computers. Carefully disconnect the Ethernet cable from the bottom of the computer linking the computer to the CCAC network.
9. Connect one of the four LAN ports on your router to the back of your computer.

10.   Power up your router. You should see that a light on the front numbered to match the port you used to connect to the computer should be lit up. If not, ensure the cable connections are firm and the router is powered on.

11. Open an internet browser and in the Address bar, navigate to the host located at the IP address printed on the front of your router device. It should start with 172.

12.   If you are successful, you'll see a router management screen load, and it might ask you for a username and password to login. The username is admin and the password is printed on a label on the router itself.

13.   Carefully review the settings on each screen on your router page. In the table below, read about and define each of the terms/ideas related to the settings on your router.

14.   Which setting areas seem to be related to router security? List them.

15.   Navigate to the DHCP settings area of your router configuration and set your device to issue addresses in an IP range of your choosing, as long as the range is part of the set of IP addresses designed for internal network routing only (i.e. starts with 172, or 192, or 10.) Instruct your device to issue a total of 15 different IP addresses in your range. List each of the possible addresses your router can now provide.

16.   Disconnect your computer from the router and plug the router into another CCAC computer to test if your DHCP system is working properly. Navigate to its command prompt and type "ipconfig" and check to see if the IP V4 address assigned to the computer is in the range you intended. If so, copy and paste the output from ipconfig into a word processor and print it off as evidence of your configuration.

17.   Advanced: read about and learn how to only issue IP addresses to computers whose MAC address is registered in the router. Setup a system in which only you and your partern's computer is issued an IP address by the router based on its MAC address. Demonstrate that those computer are given your desired IP addresses and NO OTHER system is even given an IP address.

Networking glossary:

Term/Acronym	Meaning	Source
8P8C		
IP		
MAC		
Cat 5		
DHCP		
TTL		