Name: _____		Date: _____

NETWORK DEVICES WORKSHEET

Computer Science & Networking Fundamentals

Part 1: Identify the Network Device

Write the correct network device from the word bank next to each description.

Word Bank: Router • Switch • Modem • Wireless Access Point (WAP) • Firewall • Network Interface Card (NIC)

1. Connects multiple wired devices within the same Local Area Network (LAN) and sends data only to the specific intended device.

Device: _____

2. Converts digital signals from a home network into analog/ISP signals (and vice versa) to connect to the Internet.

Device: _____

3. Directs data packets between different networks (such as your home LAN and the Internet) using IP addresses.

Device: _____

4. Monitors incoming and outgoing network traffic and blocks unauthorized access based on security rules.

Device: _____

5. Allows Wi-Fi-enabled devices (like phones and laptops) to connect to a wired network wirelessly.

Device: _____

6. A hardware component built into a computer or motherboard that allows it to connect to a network.

Device: _____

LIVEWORKSHEETS

Name: _____		Date: _____

Part 2: Multiple Choice

Circle the best answer for each question.

7. Which device uses MAC addresses to forward data frames to the exact destination port?

A) Hub
B) Switch
C) Modem
D) Repeater

8. Why is a switch generally preferred over a hub in modern networks?

A) A switch broadcasts data to every connected device
B) A switch reduces network congestion and improves security by sending data only to the target device
C) A switch connects directly to a telephone line
D) A switch does not require electricity

9. Which device boosts or regenerates a weakened network signal so it can travel a longer distance?

A) Repeater
B) Firewall
C) NIC
D) Patch Panel

10. What does a standard home "Wi-Fi router" usually combine into one single box?

A) Printer, scanner, and modem
B) Router, switch, and wireless access point
C) Firewall, monitor, and repeater
D) Hub, server, and hard drive

Part 3: Scenario Matching

Match each real-world networking problem (11–14) with the best device to solve it (A–D).

11. ____ A school has 30 desktop computers in a computer lab that all need wired Ethernet connections.	**A. Modem (or ONT)**
12. ____ A two-story house has strong Wi-Fi downstairs, but the signal barely reaches the upstairs bedrooms.	**B. Hardware Firewall**
13. ____ A small business wants to protect its internal company computers from hackers and malicious traffic on the Internet.	**C. 48-Port Network Switch**
14. ____ A family just signed up for fiber/cable Internet service and needs a device to translate the ISP's signal for their home.	**D. Wi-Fi Range Extender / Wireless Access Point**

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Name: _____		Date: _____

Part 4: Short Answer

Answer each question in one or two complete sentences.

15. Router vs. Switch: Explain the main difference between what a switch does and what a router does.

_____

_____

16. Modem vs. Router: Why do you need both a modem and a router (either as two separate boxes or a combo unit) to get Wi-Fi in a home?

_____

_____

17. Hub vs. Switch: Imagine you send a private message on a network using a hub instead of a switch. What happens to that data, and why is it a security risk?

_____

_____

18. MAC Address vs. IP Address: Which address type is permanently burned into a Network Interface Card (NIC), and which address can change when you move to a different network?

_____

_____

19. Mesh Wi-Fi Systems: How does a mesh network (using multiple nodes) improve wireless coverage in a large building compared to a single router?

_____

_____

20. Troubleshooting: All devices in an office can still share files with each other over the local network, but none of them can load websites on the Internet. Which device(s) should you check first, and why?

_____

_____

LIVEWORKSHEETS

Name: _____		Date: _____

NETWORK DEVICES WORKSHEET — ANSWER KEY

Teacher Reference & Sample Solutions

Part 1: Identify the Device

1. Switch
2. Modem
3. Router
4. Firewall
5. Wireless Access Point (WAP)
6. Network Interface Card (NIC)

Part 2: Multiple Choice

7. B) Switch
8. B) Reduces congestion & improves security
9. A) Repeater
10. B) Router, switch, and wireless access point

Part 3: Scenario Matching

11. C (48-Port Switch)
12. D (Wi-Fi Extender / WAP)
13. B (Hardware Firewall)
14. A (Modem / ONT)

Part 4: Sample Short Answer Solutions

Accept equivalent explanations that demonstrate accurate understanding of each concept.

15. Router vs. Switch: A switch connects devices together within a single local network (LAN), while a router connects different networks together (such as connecting a home LAN to the Internet).

16. Modem vs. Router: The modem brings the Internet connection from your Internet Service Provider (ISP) into your home, while the router shares that connection across multiple wired and wireless devices.

17. Hub vs. Switch: A hub broadcasts the data to every device connected to it rather than just the intended recipient, which allows other devices on the network to intercept or read the traffic.

18. MAC vs. IP Address: The MAC address (physical address) is permanently assigned to the NIC by the manufacturer, whereas the IP address (logical address) is assigned by the network and changes when you connect somewhere else.

19. Mesh Wi-Fi Systems: Mesh nodes communicate with each other to blanket a large area with a single seamless Wi-Fi network, eliminating dead zones without forcing devices to manually switch network names.

20. Troubleshooting: You should check the modem and the router's WAN/Internet connection first, because the local switch is still working (internal file sharing works), meaning the issue is between the router and the ISP.

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