Unit 2: The Internet Study Guide

1. Define the following terms:

a. Computing Device : **A machine that can run a program, including computers, tablets, servers, routers, and smart sensors**

b. Computing System : **A group of computing devices and programs working together for a common purpose**

c. Computing Network : **A group of interconnected computing devices capable of sending or receiving data**

d. Path : **The series of connections between computing devices on a network starting with a sender and ending with a receiver.**

2. Describe the steps necessary to send a photo or other data from one person to the next over the internet. : **Computers split messages into packets and send them through routers to their final destination. The destination computer acknowledges the receipt of each packet, so that the sending computer can ensure every packet is delivered.**

3. Go back and look at the lessons that dealt with sending information over the internet. Describe the path that data can take from beginning to end user. : **The information that is being sent is converted into packets**.**The information is sent over networking routes. When one route fails, it takes another route and uses the IP address as the destination. There are two different ways packets are sent. The User Datagram Protocol is faster but not very accurate while Transmission Control Protocol is slower but accurate.**

4. How has the Internet responded to the increasing number of devices now using the network?
We have switched to Ipv6 which allows for more devices
5. How are packets sent through the internet?
Via networking routes
6. Why are packets able to arrive out of order? What happens if they do?
Packets can take different paths and the computer wouldn't be able to understand the message so the message would be lost.
7. What is the purpose of an IP address? **Allows information to be sent between devices on a network**

8. Describe what the following Internet protocols do:

a. Transmission Control Protocol (TCP) - **Sends packet slower but accurately**

b. Internet Protocol (IP) - **a protocol for sending data across the Internet that assigns unique numbers (IP addresses) to each connected device**

c. User Datagram Protocol (UDP) - **Sends packet faster but not accurately**

d. HyperText Transfer Protocol (HTTP)
A protocol for computers to request and share the pages that make up the world wide web on the Internet

9. What is fault-tolerance? How does it influence the internet and communicating?
Can continue to function even in the event of individual component failures. It allows communication even in case individual components fail.

10.Why would an ISP (internet service provider) want to add additional redundant connections?
So that there are more chances the internet would work when components fail.

11.What is the digital divide? Who is impacted by it?
Differing access to computing devices and the Internet, based on socioeconomic, geographic, or demographic characteristics. It affects individuals and groups across the world

12.What are the outcomes of the digital divide? **Unequal knowledge and distribution of technology of people across the world.**