How does the Internet Work?

### The answer to all the questions can be found in the listed videos. I suggest reading through all the questions first so that you know what answers you’re looking for, then watching videos that sound like they will answer the question you’re trying to answer. **Answers must be in complete sentences to receive credit.**

Internet Infrastructure as Fast As Possible - <https://youtu.be/n71TUnTNdw8>

DNS as Fast As Possible - <https://youtu.be/Rck3BALhI5c>

Internet vs Web as Fast As Possible - <https://youtu.be/laepk9KrAZY>

Internet Protocol - IPv4 vs IPv6 as Fast As Possible - <https://youtu.be/aor29pGhlFE>

Routers vs. Switches vs. Access Points - And More - <https://youtu.be/Vc16CCAAz7Q>

What is TCP/IP? - <https://youtu.be/PpsEaqJV_A0>

HTML5 as Fast As Possible - <https://youtu.be/IsXEVQRaTX8>

Bits vs Bytes as Fast As Possible - <https://youtu.be/Dnd28lQHquU>

How Do URLs Work? - <https://youtu.be/OvF_pnJ6zrY>

# Questions:

1. What is the difference between bits and bytes and what are they used for?

A bit is the smallest unit of storage while a byte is a grouping of eight bits.

1. Why is HTML5 the new standard?

It supports the latest multimedia while also remaining both easily understood by humans and consistently understood by computers.

1. What is the difference between the Internet and the Web?

The Internet is a networking infrastructure while the Web is a way of accessing information using the Internet as a medium.

1. What is the role of an ISP?

To provide services accessing and using the Internet.

1. What is a modem?

A hardware device that allows a computer to send and receive data.

1. What is a browser?

A program with a graphical user interface for displaying HTML files.

1. What is the difference between guided and unguided media?

Guided media requires a physical path for signal transmission while unguided media signals are broadcasted through air or water.

1. Summarize how the internet was developed.

In 1957, J.C.R. Licklider was appointed by President Dwight Eisenhower to research the potential benefits of a country-wide communications network in order to regain the technological lead in the arms race subsequently to Russia’s launch of the first satellite. Licklider’s successors hired Lawrence Roberts to implement the vision, which he did based on the new idea of packet switching invented by Paul Baran. A special computer called an Interface Message Processor was developed to realize the design and the ARPANET went live in early October of 1969. The first networking protocol used on the APRANET, the Network Control Program, was replaced with the TCP/IP protocol invented by Robert Kahn and Vinton Cerf, along with others, which quickly became the most widely used network protocol in the world. The ARPANET was retired and transferred to the NSFNET, which was soon connected to the CSNET and then to the EUnet. The use of the Internet exploded after 1990, causing the US Government to transfer management from NSF to independent organizations.

1. What is a web server and what purpose does it serve?

A program that uses HTTP to serve the files that form Web pages to users.

1. What is a router and what purpose does it serve?

A networking device that forwards data packets between computer networks.

1. What are packets and what purpose do they serve?

Basic units of communication of a digital network.

1. What are IP addresses and what purpose do they serve?

Numerical labels assigned to each device connected to a computer network that identify hosts or networks and locate the device being used.

1. What is Intranet and what purpose does it serve?

A private network belonging to an organization and containing a wide range of information and services that would not be available to the public from the Internet.

1. What is bandwidth?

The transmission capacity of a computer network or other telecommunication system.

1. What is a firewall?

A part of a computer system or network that is designed to block unauthorized access while permitting outward communication.

1. What is the “backbone” (Internet backbone service providers) and what purpose does it serve?

Data routes hosted by commercial, government, academic and other high-capacity network centers that exchange Internet traffic around the world.

1. What is the purpose of a domain name?

Define a realm of administrative autonomy, authority or control within the Internet.

1. Match the parts of the URL to it’s name:

scheme://host:port/path?query

1. What is a static IP address?

An address that was manually configured for a device.

1. What is a dynamic IP address?

An address that was assigned to a device via a DHCP server.

1. What is the difference between IPv4 and IPv6?

Ipv6 is designed to allow the internet to grow steadily while Ipv4 is expected to eventually run out of addresses available to be assigned.

1. What is the function of a DNS?

To translate domain names in to IP addresses

1. What does HTTP stand for and how is it used?

Hyper Text Transfer Protocol allows for linking and browsing and is used to communicate between web servers and web users.

1. What does HTTPS stand for and how is it used?

Secure Hyper Text Transfer Protocol is used to make data safe when transmitted over the Internet.

1. What does FTP stand for and how is it used?

File Transfer Protocol is a way of transferring files between computers.

1. What does SMTP stand for and how is it used?

Simple Mail Transfer Protocol is used to carry the electronic mail of the world.

1. What does TCP/IP stand for and how is it used?

Transmission Control Protocol/Internet Protocol is used to allow two or more computers to communicate.