protocol

a protocol governs the transport of data on the internet

common protocols

TCP - transmission control protocol

> breaks up messages, reassembles, detects errors and resends lost messages

IP- internet protocol

> routes packets around the internet from one IP address to another

HTTP- hypertext transfer protocol

> used for accessing and receiving webpages

HTTPS - hypertext transfer protocol secure

> the information is encrypted so if it intercepted it cannot be understood

FTP- file transfer protocol

> used for sending and receiving files

IMAP- Internet message access protocol

> leaves mesage on the server and syncs with all of your devices, can only be deleted if user deletes email

POP/3- post office protocol/3

> downloads every new message to local device so it is no longer available on the server

SMTP- simple mail transfer protocol

> used for sending emails

the TCP/IP protocol stack aka layers

applic-ation layer	applications such as email clients and web browsers create data to send in this layer. SMTP, FTP and HTTP operate in this layer
transport layer	the transport layer creates the connection between two computers, or 'hosts'. data is then divided up into packets and given a packet number. packets are reassembled by the recipient's transport layer. lost packets are resent. This layer uses TCP.
internet layer	the Internet layer is responsible for routing packets. routers operate on this layer
link layer	the link layer is responsible for transporting information between nodes on the network.

advantages:
- self-contained
- the functionality of one layer can be changed without affecting another
- senders and receivers can use different hardware and software but can communicate using the same layer protocols