(1) Hub →

The purpose of Hub is to connect all of your network devices to gather on a internal network it's a device which have multiple ports that accepts ethernet connections from network devices.

Hub is considered not to be intelligent because it does not filter any data or has any intelligence as to where the data is supposed to be sent.

And that's because the only thing a Hub knows is when a device is connected to one of it's ports

So when a data packet arrives at one of the ports, it is copied to all of the other ports

So all the devices on that hub sees that data packet

So when that happens, it not only creates security concerns but it also create unnecessary traffic on the network, which waste bond width

② Switch ⇒

-Switch is very similar to hub.

it's also a device that has multiple ports that accepts Ethernet connections from network devices.

But unlike a hub a switch is intelligent

A switch can actually learn the physical addresses of the devices that are connected to it and it stores the physical addresses called MAC addresses in its table.

So when a data packet is sent to a switch it's only directed to the intended destination port unlike a hub where a hub will just rebroadcast the data to every port.

That's why switches are far more preferred over hubs

(3) Router =>

A router is a device that routes and forwards data from one network to another based on their IP address.

When a data packet is received from the router the router inspects the data's IP address and determines if the packet was meant for it's own network or if it's meant for another network if the router determine that the data packet is meant for it's own network, it receives it But if it's not meant for it's own network, it sends it off to another network.

So a router is essentially the getway of a network. A router is a layer 3 device.

(4) Gateway ⇒

Gateways don't possess the degree of networking traffic control that routers do but they usually offer simplified configuration.

Gateways often tend to have some kind of an onboard programming model as well and some even offer I/O options.

The important thing about gateways is that by definition is that they provides protocol translation

(5) Modem ⇒

A modem is what brings the internet into your home or business. A modem establishes and maintains a dedicated connection to your internet service provider to give you acces to the internet

Now the reason why you have to have a modem is because of the two diffrent types

of signals that are used on a computer and on the internet.

A computer only reads digital signals. while signals out on the internet are analog.

So analog data comes in from the internet the modem demodulates the incoming analog signals into a digital signal so that a computer can understand it

And a modem also modulates outgoing digital signals from a computer into an analog signal as it goes out on the internet.

The word modem is mean modulator and demodulator.

(5) Repeater => In telecommunication a repeater is a device that recieves signals and retransmits it. Repeaters are used to extend transmissions so that the signal can cover longer distances

be received on the other side of an obstruction. Some type of repeater broadcast an identical signal but alter its method or transmission for eg another frequency or bond rate.

Repeaters amplifies the attenuated signals and then retransmits it

(7) Bridge =>

Bridge = Repeater + Functionality of reading MAC addresses.

it's a layer 2 device

it's also used for interconnecting two LAN's on the same protocol and it is also a 2 port device.

A bridge interconnects Local area networks that are running on the same protocol and the bridge is layer 2 device that

that is it processes or it deals MAC addresses