



Connecting Online

Presented by Maxx Mittelstadt



Topics

- **Refresher**
 - Terms and Jargon
- **Get internet at home**
 - Options
 - Set up
- **Cable vs. Wi-Fi**
- **Connecting Devices**
 - Computers
 - Windows and Apple
 - Mobile
 - Apple and Android

Tech Catch Up

Term, Slang, and Jargon



Computer:

AKA Personal Computer (PC), Windows 10, and Mac

Device:

General term for computer, smart phone, tablet, or computer equipment.

If it has computer parts and transfers data would be considered a device.

Ethernet : *Partially slang*

Cabling and connectors used for the connecting a computers and devices to a network.

Network:

Series of connected computers and devices that allow data and info to be transferred back and forth.

Internet Network:

A large connection that lets a users computers and devices send and receive data from someone else's.

Data:

Electronic signals that get moved around that make the computer and devices work and operate.

Mbps (Megabits per second):

Is one type of measurement of how much data is sent and received.

Data is measured in bits.

Example: Mbps (Megabits per second) = 1 million bits

Gbps (Gigabits per second) = 1 trillion bits

Upstream / Upload:

The data that is sent on an internet network.

Downstream / Download:

The data that is received from an internet network.

Internet Protocol Address (IP Address):

The digital name of a internet network device. The IP address makes it so that a device on a network receives the data intended for it from another.

Service Set Identifier (SSID):

The user given name of wireless access point or wi-fi router.

Selecting an
Internet **S**ervice **P**rovider
I S P

[Residential \(4\)](#)[Business \(3\)](#)[Mobile \(3\)](#)[Sort by](#)

1. CenturyLink

✓ 98% available in 44012

Connection:
FiberDownload
speeds up to
40Mbps★★★★☆
User Rating (399)[View Plans >](#)

2. Spectrum

✓ 100% available in 44012

Connection:
CableDownload
speeds up to
100Mbps★★★★☆
User Rating (730)[View Plans >](#)

3. Viasat

✓ 99% available in 44012

Connection:
SatelliteDownload
speeds up to
25Mbps★★★☆☆
User Rating (10)[View Plans >](#)

4. WOW!

✓ 97% available in 44012

Connection:
CableDownload
speeds up to
50Mbps★★★★☆
User Rating (9)[View Plans >](#)

How much internet speed do I need?

5+ Mbps

- Regular browsing
- Music streaming
- Ideal for 1 person

10+ Mbps

- HD video streaming
- Casual gaming
- Ideal for 1-2 people

20+ Mbps

- Ultra HD streaming
- Frequent gaming
- Ideal for 2-4 people

40+ Mbps

- Simultaneous HD streaming
- Simultaneous gaming
- Ideal for 4+

[Test your current internet speed](#)[Discover how much internet speed you need](#)

SPEED CALCULATOR

Check how much internet speed you need.

BROADBANDNOW®
Speed Calculator

We recommend at least
137 Mbps

Based on your internet usage
we recommended speed of at least:

137 Mbps

Enter Zip to see providers in your area

Search

Question 4/4

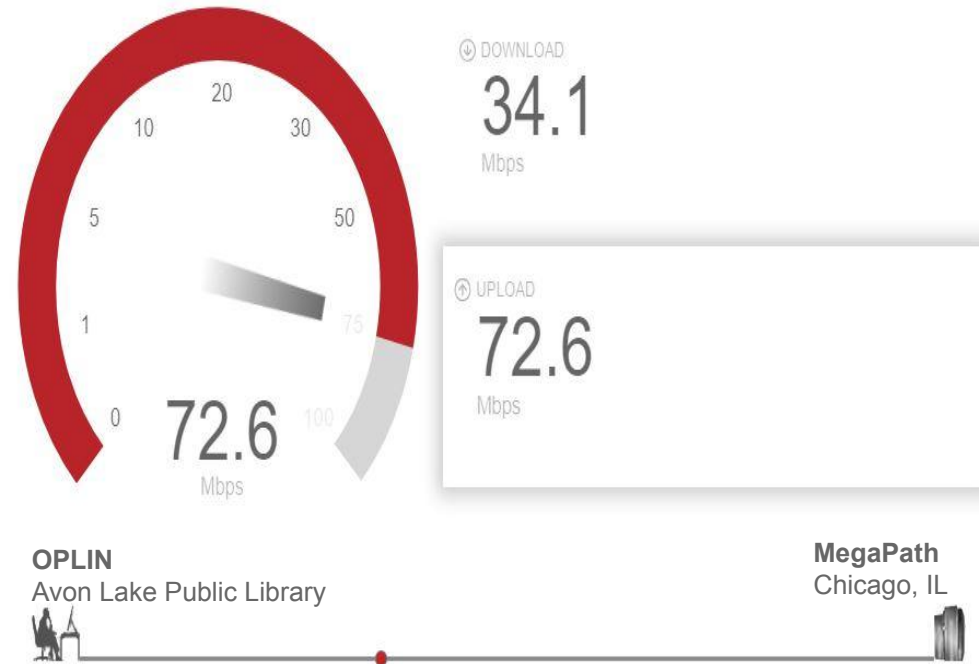
Back

<https://broadbandnow.com/bandwidth-calculator>

<https://www.highspeedinternet.com/how-much-internet-speed-do-i-need>

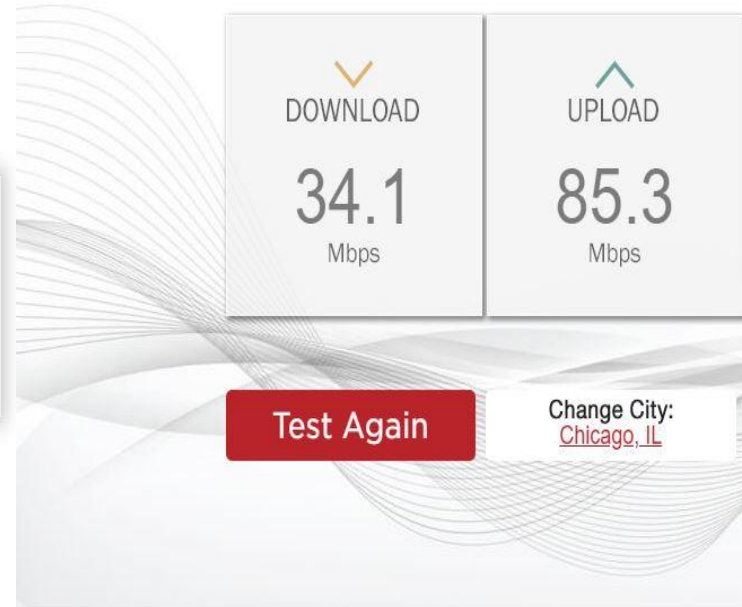
<https://www.speakeasy.net/speedtest/>

SPEAKEASY SPEED TEST



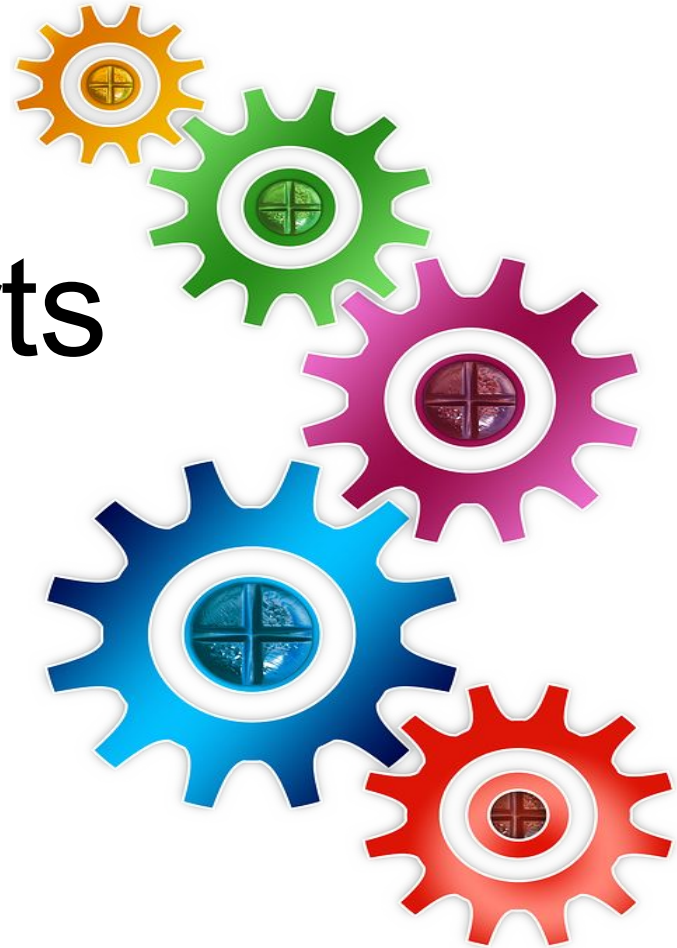
SPEAKEASY SPEED TEST

Your Speed Results



Home Internet Parts

- modem and router
- hub and switch
- wi-fi extenders



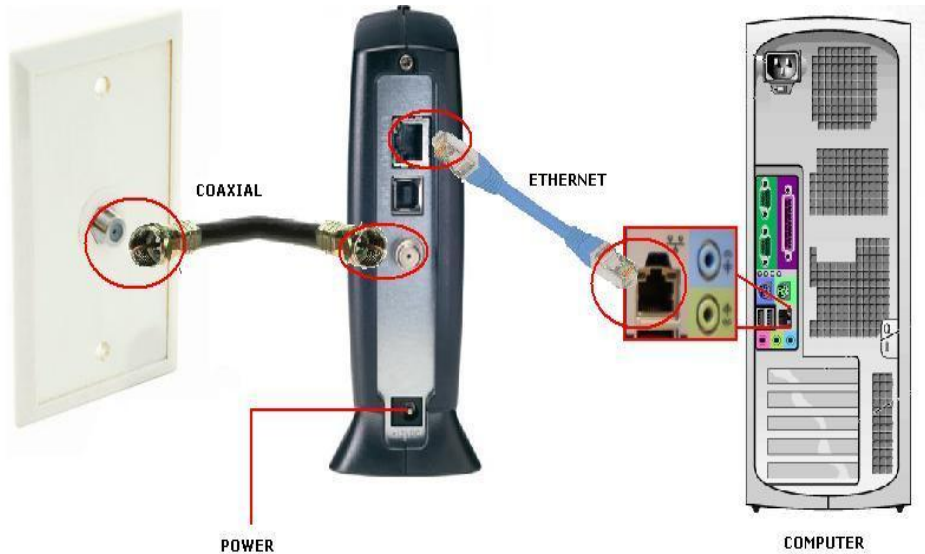
Modems: Cable vs. DSL (Digital Subscriber Line)



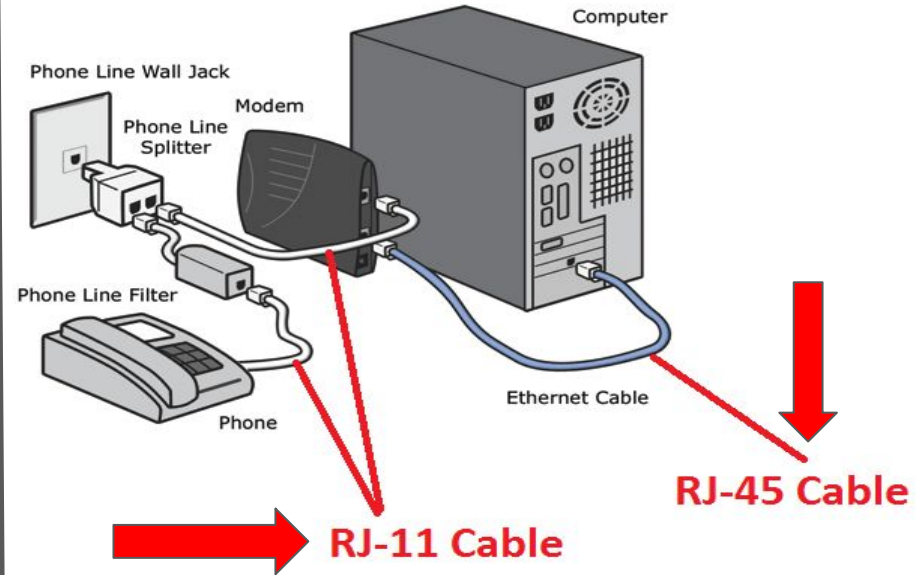


<https://www.youtube.com/watch?v=RLooclr7wA>

Current setup with just a modem.



Coaxial Modem



DSL Modem



A modem is what brings the internet into your home or business.

What can I connect to a modem?

Only **ONE** device?

Does a modem give me wi-fi ?



Business router



Small office / home office
router



Configuring the Router

1. Find the IP address of the router.
2. Open a web browser on the computer that is connected to the router.
3. Enter your username and password.
4. Open the Wireless Settings.
5. Enter a name for your wireless network.
6. Choose a security method.
7. Create a passphrase.
8. Save your settings.
9. Change your router's username and password from the default.

Internet Protocol (IP) Address

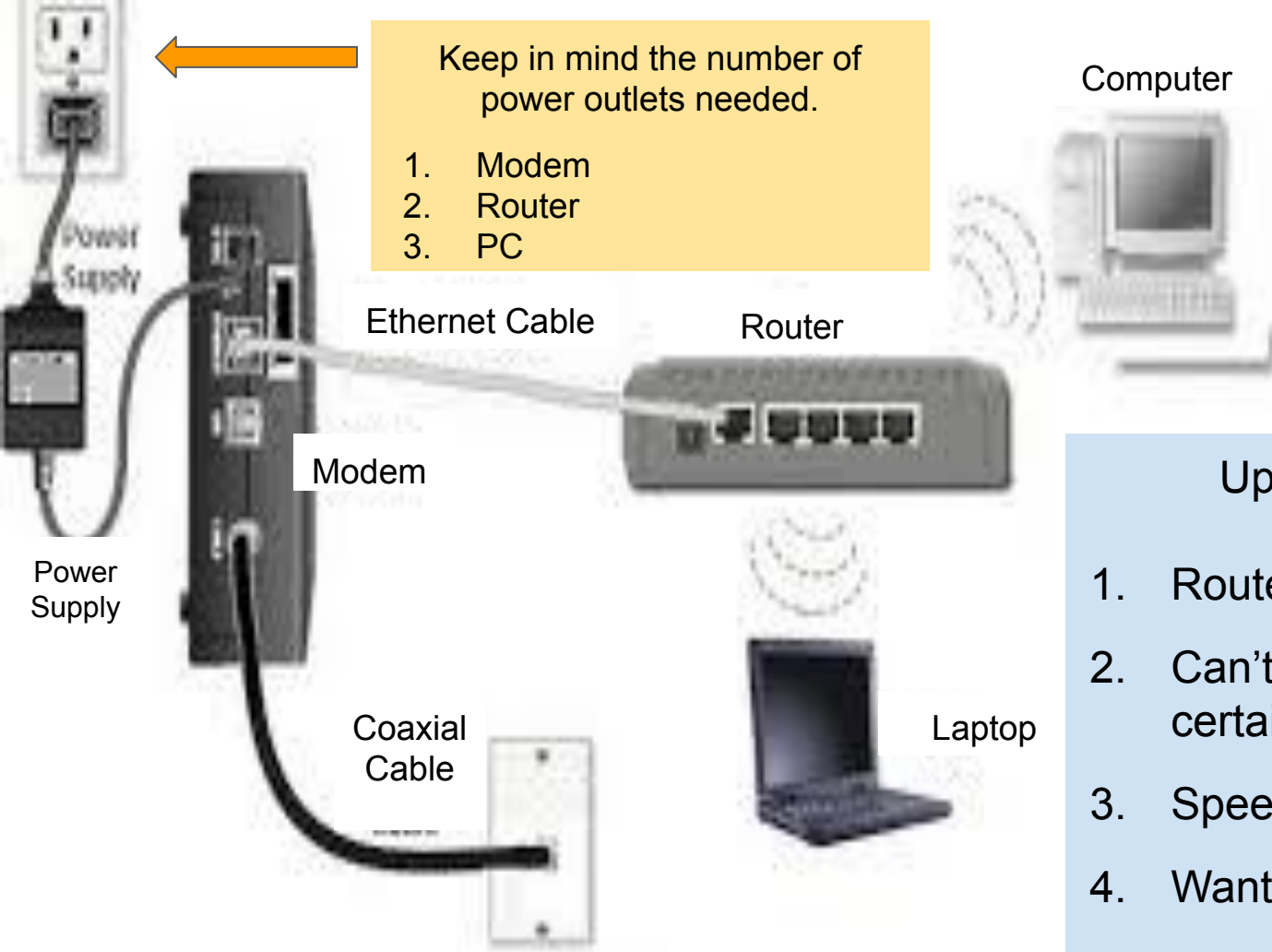
An identifying number for connected devices on network.

Service Set Identifier (SSID)

The primary name associated with a wireless local area network (LAN).



https://www.youtube.com/watch?v=IMfSDD_ARiw



Upcoming Problems

1. Router has no more ports
2. Can't connect to the wifi in certain areas.
3. Speeds are slow.
4. Want to share files in network

HUB, SWITCH, ROUTER

ANIMATED

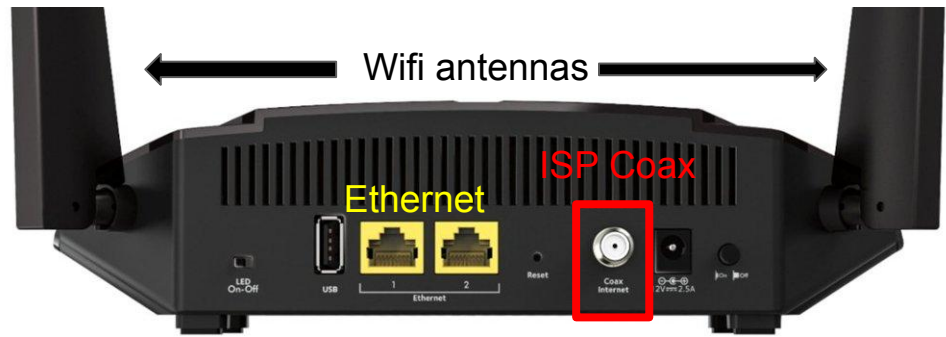


WHAT'S THE DIFFERENCE?

https://www.youtube.com/watch?v=1z0ULvg_pW8



- Some modems have a **built-in** router.
- All routers have a built-in switch.



ALWAYS KEEP THE ROUTER AND MODEM BOX along with manuals for reference.

WIFI EXTENDER



EXPLAINED



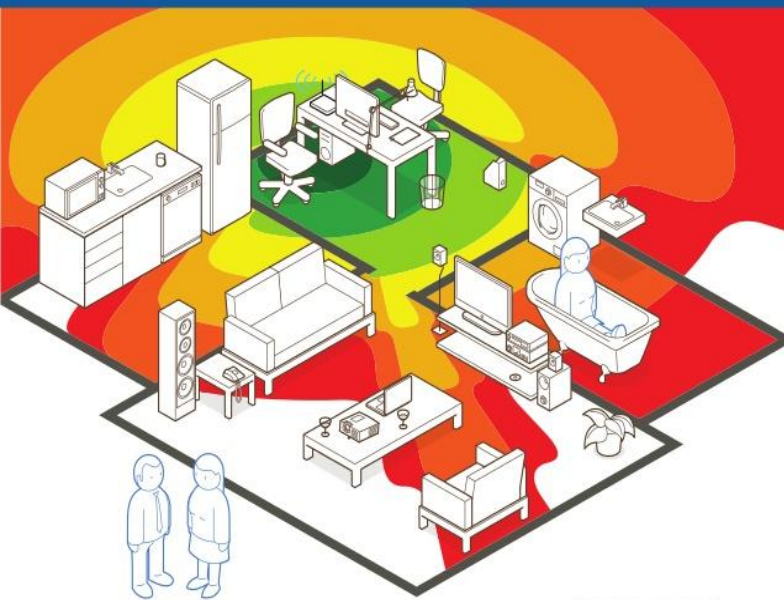
<https://www.youtube.com/watch?v=1rJ1tSzgvpE>

Wi-Fi Adaptors

If a device doesn't have a built in wi-fi antenna or want a better antenna. Wi-Fi adaptor can be a cheaper upgrade for faster internet connection without buying a new device.



5 GHz vs. 2.4 GHz: The New Wave in Wi-Fi



DeepBlue
A Passion for Wi-Fi

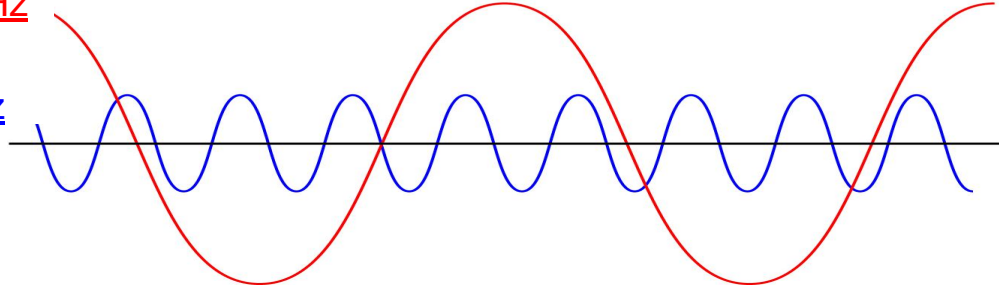
The
Future of
WiFi
Information Series

www.deepbluecommunications.com

2.4 GHz and 5 GHz Wavelengths

2.4 GHz

5 GHz



Surfing the web,
chatting online
or checking emails.

Video streaming,
online gaming or
large file transfers.

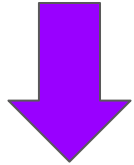


2.4Ghz OR 5Ghz





Signals



Antennas



WIRELESS		SPEED (Mbps)
Wireless a		11
Wireless b		54
Wireless g		54
Wireless n		300
Wireless an		900
Wireless ac		450 + 1300

		Antennas (Tx*Rx)	Spatial Streams	Maximum Link Speed	Band Support		
	{	Single Stream	1 x 1	1	72 Mbps	2.4	B,G,N Single Stream
		Dual Stream	1 x 2	2	150 Mbps	2.4	B,G,N DualStream
	{	Dual Stream	2 x 2	2	150 Mbps	2.4	
		Dual Stream	2 x 3	2	150 Mbps	2.4	
	{	Dual Stream	2 x 2	2	300 Mbps	2.4 & 5	A,B,G,N Dual Stream
		Dual Stream	2 x 3	2	300 Mbps	2.4 & 5	
		Multi Stream	3 x 3	3	450 Mbps	2.4 & 5	A,B,G,N Multi Stream

iPad



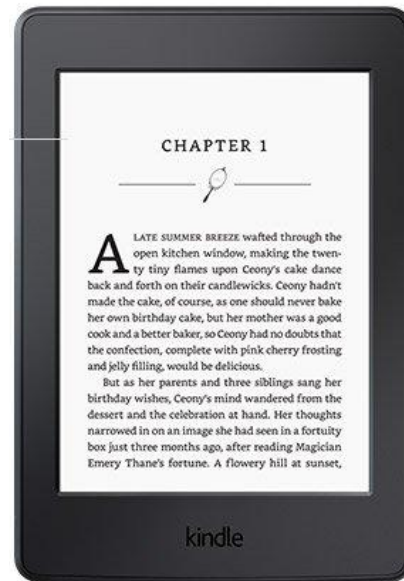
Wi-Fi Specs

- Wi-Fi (802.11a/b/g/n/ac);
- Dual band (2.4GHz and 5GHz)
- Bluetooth 4.2 technology

Not all devices are
made the same.

Always check
the tech specs.

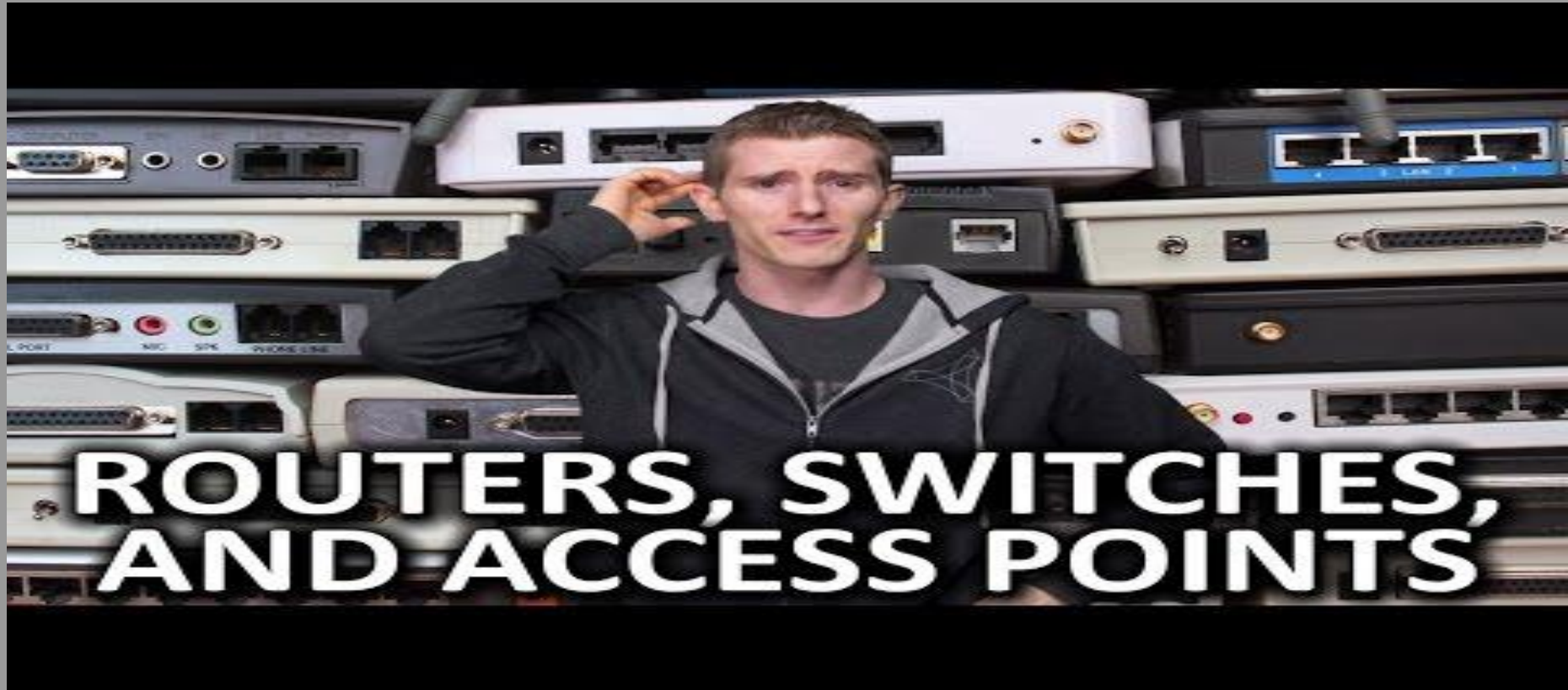
Kindle Paper Weight



Wi-Fi Specs

- Wi-Fi(802.11a/b/g/n/ac)
- 2.4GHz

Home Internet Parts in Summary



<https://www.youtube.com/watch?v=Vc16CCAAz7Q&t=265s>

Physical vs. Wireless Connection

Physical

Pros:

1. Increased Security
 - a. Hard to read a wired signal.
2. Reliable Speed
 - a. No non-essential traffic.
 - b. Can't be blocked.
3. Can receive and send info at the same time. (Known as **Full Duplex**)

Cons:

1. Cable management
 - a. Buying enough cables and parts.
 - b. Lost of cables together can could interference. (unlikely)

Wireless

Pros:

1. No wires
2. Easily accessible
 - a. Connecting new devices is easier.

Cons:

1. More vulnerable to security problems.
 - a. Sensitive and private info being sent through the air.
2. Certain walls or items can block signals.
3. Can only send or receive data one at a time per antenna. (Known as **Half-Duplex**)

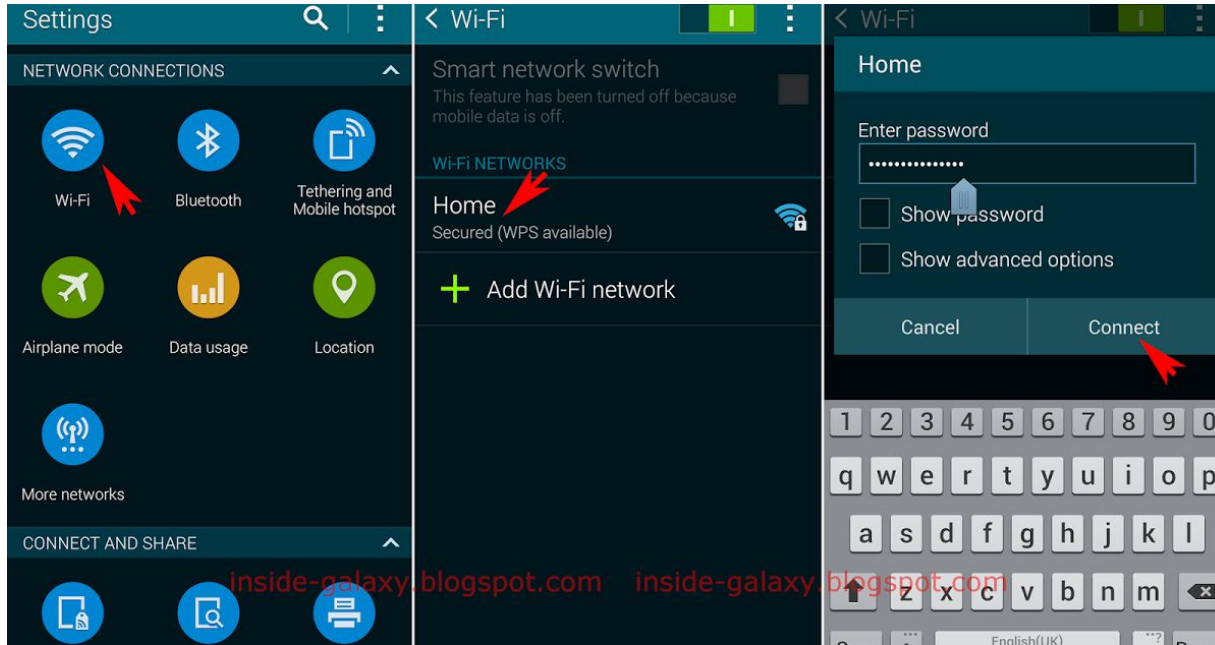


<https://www.youtube.com/watch?v=YTRImxNRk7U>

Connecting Different Devices

Android Devices and iOS (iphone and tablets)

1. Go to Settings
2. Wi-Fi
3. Select Router SSID
4. Login using router password



Connecting Different Devices

Mac and Windows 10

Mac:

Look for a Wi-Fi symbol on top of screen.

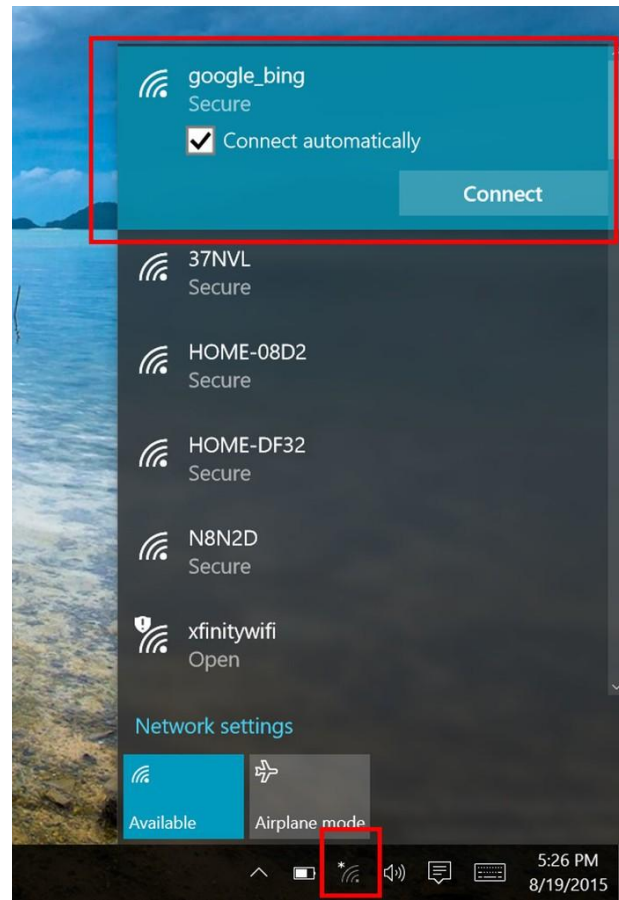
Windows:

Look for Wi-Fi symbol on bottom of screen.

MAC



WINDOWS



Internet Down!



Check Modem First

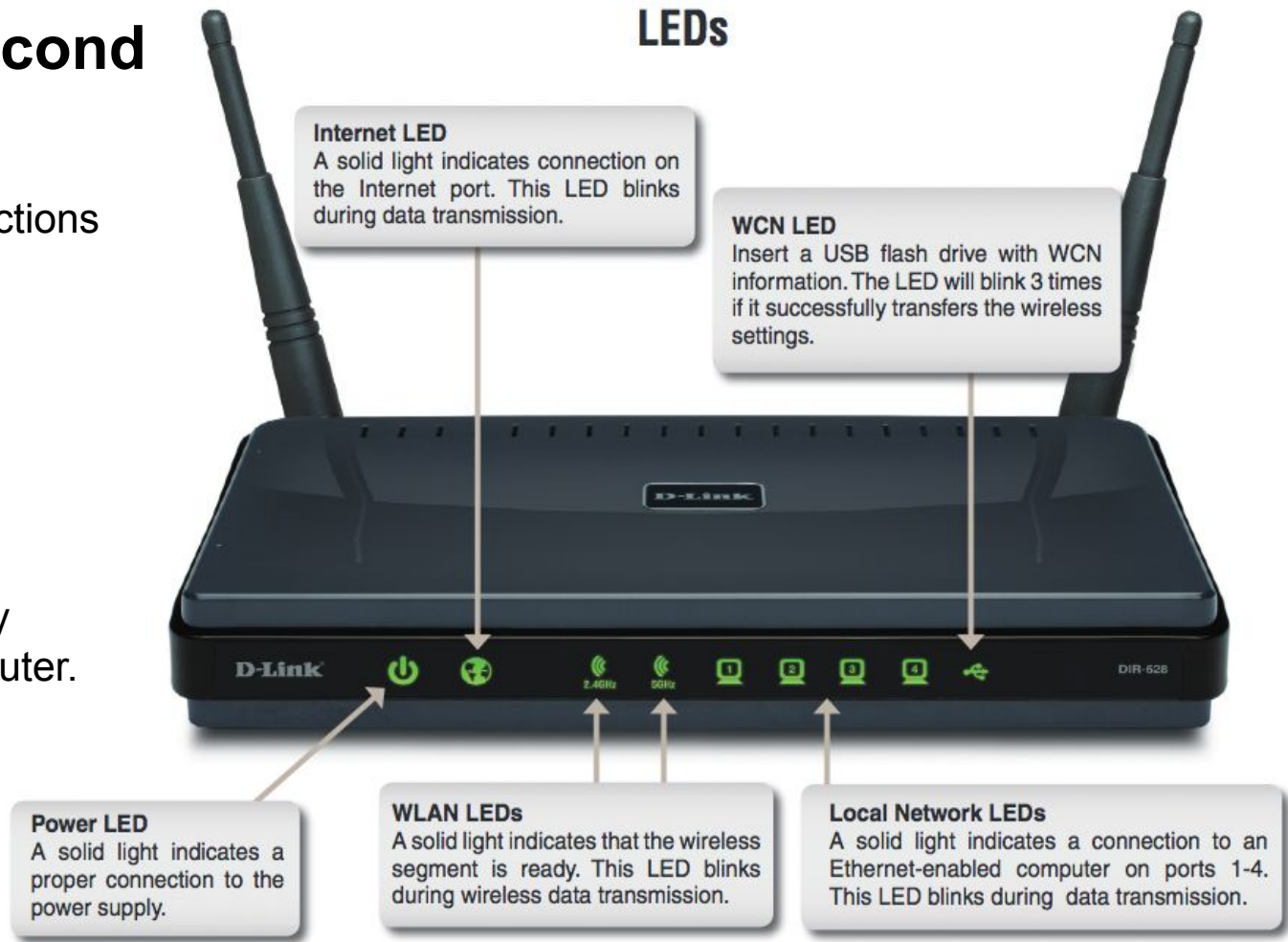
- If modem isn't receiving data
 - Check physical connections.
 - Turn it off and on again.
 - If still not receiving data call Internet Service Provider.
- Check around the area.
 - Outside of your control events
 - Construction work
 - Disconnected cable lines
 - Power outage
 - ISP upgrades and downtime



Check Router Second

- Check physical connections
 - Cables
 - Antennas
- Turn off and on again.
- Refer to the manual
 - Look at the box, manuals, and any notes that with router.

Hardware Overview LEDs



Resources:

- <https://www.broadbandnow.com/bandwidth-calculator>
 - <https://www.highspeedinternet.com>
 - <https://www.speakeasy.net/speedtest/>
 - <https://edu.gcfglobal.org/en/subjects/tech/>
 - <https://www.youtube.com/user/Techquickie>
 - https://www.youtube.com/results?search_query=power+cert+animated+videos
 - <https://www.linksys.com/us/r/resource-center/whole-home-mesh-wifi/>
-
- **<https://kb.netgear.com/119/How-to-configure-your-NETGEAR-router-for-cable-internet-connection-with-Smart-Wizard>**