

Improving internet performance when learning remotely or learning from home

Learning remotely? Understanding your internet connection capacity is an important component to a successful remote learning experience. This article will provide information and best practices when it comes to internet connections. See our article on [technology suggestions when learning remotely or from home](#) for more tips.

Weak wi-fi signal or a poor broadband internet provider -- meaning less than 15 Mb/s download speeds, 5 Mb/s upload speed, or high latency -- can make it difficult to work remotely.

First, consider whether your internet provider is up to the task. Depending on your city and neighborhood, not all of these options are available to you.



- **Fiber and cable internet** providers (such as Comcast, ATT, Verizon, etc.) generally offer the highest quality connection and will work well for remote work.
- **DSL** service is a generally lower-quality service but is the best choice for some rural neighborhoods and homes.
- A **cellular hotspot** may work, depending on the strength of the cellular coverage in your area, but often restricts how much bandwidth you can consume. For a nominal fee consider increasing your service plan during this event.
- **Satellite** broadband (HughesNet, etc.) and **dial-up** internet options won't work well for access to Pacific resources.

Next to the internet provider you use, the next most important factor is how you connect to the network within a house or other location. Three things to consider, ranked from most important to least.

- If possible, directly connecting to the internet router or access point via a wired (Ethernet) cable will provide the best quality, especially for audio/video applications like WebEx and Zoom.
 - If you connect via Ethernet, you don't need to worry about wi-fi quality.
- If you need to use wi-fi, the quality of your wireless connection will significantly impact your overall internet quality.
 - Avoid having two or more walls or one floor between your computer and your home's internet router/access point.
 - Houses larger than 1,500 square feet or so (depending on layout and building materials) will usually need multiple wireless access points for good house-wide coverage.
 - If you're using the wireless access point that came with your internet connection, note that these often have average to poor coverage.

- Consider installing a newer wi-fi access point, or wi-fi mesh networks that cover your home with multiple access points. [The Wirecutter](#) by The New York Times regularly tests and recommends WiFi access points and mesh hardware.
- Wi-fi signals are transmitted at two different frequency modes: 2.4 GHz and 5 GHz. 2.4 GHz is an older technology; it's more prone to interference and runs at slower speeds.
- For best results, make sure your computer is using 5 GHz wi-fi; then, disable 2.4 GHz on your router and update other devices on your network to use only 5 GHz.



We recommend you test your internet service to make sure you are ready to work. We recommend using the free <https://www.speedtest.net> website or iOS/Android app. This provides an end-to-end test of all the factors affecting your device's connection: your internet provider, your home network setup, and the device you're on.

When you run Speedtest, there is an option to choose a server to test against -- we recommend picking the one in the closest city to you. For best results, you'll want at a minimum:

- 15 megabit per second (Mb/s) or better download speed
- 5 megabit per second (Mb/s) or better upload speed
- A 'ping time' of less than 75 milliseconds

