# Home Internet/Zoom Tips for Chromebooks

At times it may seem like your home internet is causing issues with your student's Zoom sessions. It's important to note that sometimes the issue isn't with the bandwidth, but what might be going on with the devices the students are on and/or other activities in your home.

While not totally perfect, here are some tips to help maximize your Zoom experience at your home:

- When Zooming on Chromebooks, make sure the students avoid Gallery Mode. This can overtax the Chromebook processor and cause glitching.
- Zoom likes to say "internet connection unstable" when it's actually something else causing issues with the session. You can click on the Settings icon in the Zoom Chrome App and click on Statistics to see what's happening on the Chromebook (internet bandwidth, processor memory), which could help determine where the issue is.

In the Chromebook Zoom App:

Click the Settings icon in the upper right.
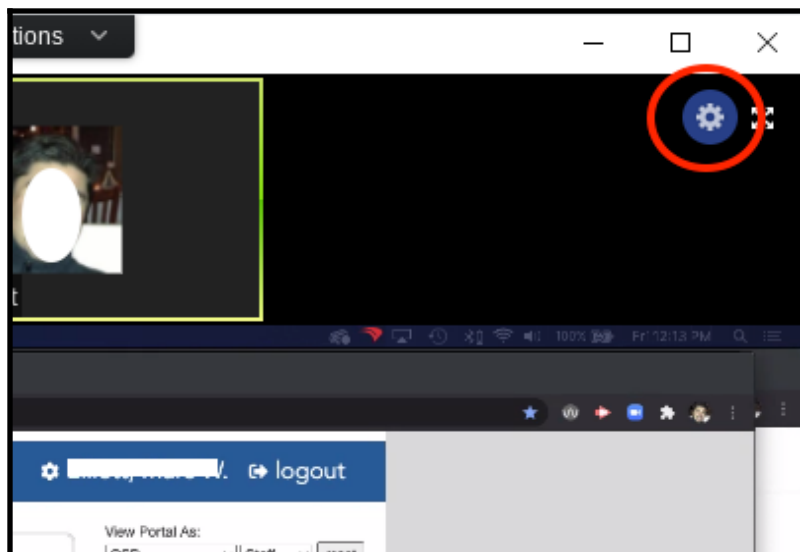
In Statistics, you will be looking for two values in particular related to potential WiFi/bandwidth issues:

1. Latency - If there is high latency, you will see a choppy screen, freezing video, etc. Zoom says that it recommends a latency speed of 150ms or less. A high number may indicate a weak wireless or internet connection.
2. Packet Loss - this is data that is "lost" in transmission either being sent or received. A number higher than 5% will start to impact the Zoom session.

It is also VERY possible that the Chromebook processor is being over taxed. You can check for this by viewing the Chromebook Task Manager. To view the Task Manager:

1. Open a Chrome Web browser window and click the three dots for More in the upper right.
2. Then click the More Tools option in the menu
3. From the menu that pops out, click Task Manager
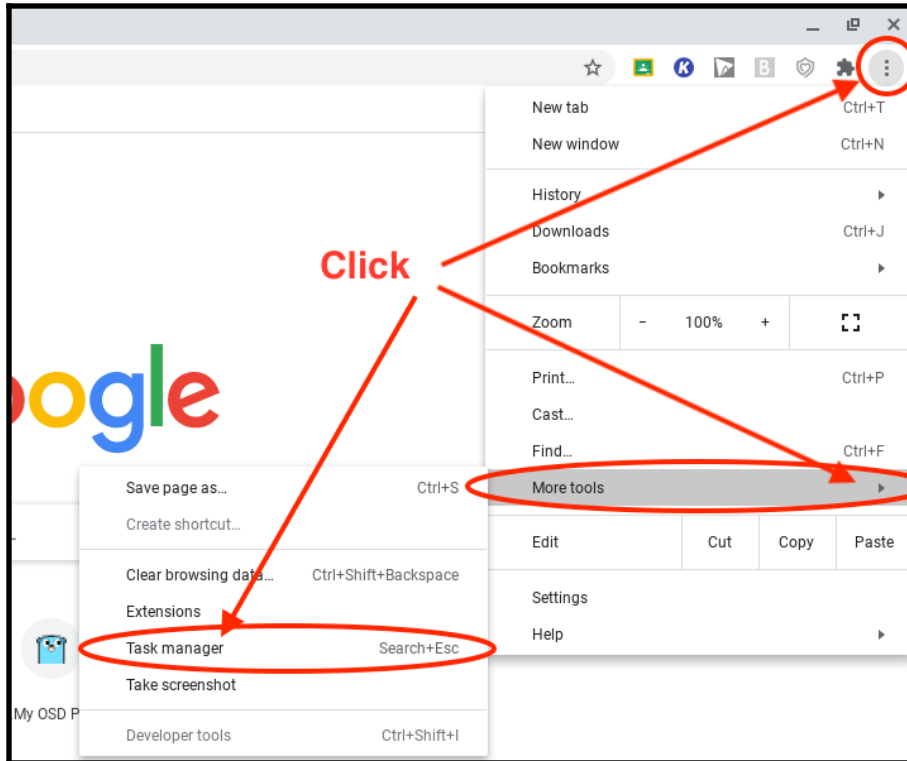
This will open the Task Manager, where you will see Zoom (If you're in a live session). As you can see, Zoom does use quite a bit of processing power. If the overall processor capacity (all apps considered) is nearly 100%, overall Chromebook performance will be poor. Read through the following tips to help lower the processor load.

Task Manager - Google Chrome

Task	Memory footprint	CPU	Network	Process ID
Browser	131,004K	15.0	0	1503
GPU Process	120,812K	1.0	0	1633
Utility: Network Service	24,880K	3.0	0	1635
Spare Renderer	43,704K	0.0	0	9520
Tab: New Tab	55,976K	0.0	0	9661
Subframe: https://google.com/	52,148K	0.0	0	4453
Extension: Share to Classroom	49,276K	0.0	0	3035
Extension: Kami Extension - PDF and Document Annotation	49,052K	0.0	0	3064
Extension: Video Recorder for WeVideo	46,364K	0.0	0	3189
Extension: Securly for Chromebooks	54,020K	1.0	0	3204
Extension: Google Docs Offline	46,800K	0.0	0	8908
Subframe: https://google.com/	48,984K	0.0	0	8872
Background Page: Zoom	75,668K	6.0	0	9734
App: Zoom				
Webview: about:blank	45,260K	0.0	0	9788
Native Client module: Zoom		–	60.1	0	9753

- Make sure that other tabs are not open on the Chromebook that aren't necessary. If a student has open tabs for things like YouTube, streaming audio, etc, this will take away resources from the Zoom session.
- Consider the other devices in the household that could be taking up bandwidth. Does the family stream all of their video/tv and are they at that time? Are they streaming media through Alexa or other devices like that? Video gaming?
- Is the family using their own wireless router? How is that router set up in reference to frequency ranges? 5Ghz is the preferred frequency over 2.4Ghz, which is easily interfered with by things like cordless home phones, microwaves, etc. I realize this is a higher end technical answer, but there's no other easy way to put it.
- Try to keep as close a distance to the wireless router as possible.
- A bit of a longshot is to Powerwash the device to reset it back to factory settings. It may clean up an unknown issue.
- **NEW:** Google is aware of the processor issue with Chromebooks and Zoom. In the very near future they are releasing an update that will help to correct the processor overtaxing. We will let you know to check for an update when it is available.

If you are in a situation where you cannot get home broadband capable of supporting Zoom sessions and/or you do not have T-Mobile cellular coverage there are a few more options:

- The Olympia School District is working to provide strong wireless coverage in each of our school parking lots. Olympia and Capital HS already have good coverage.
- Comcast/XFinity has opened up their BUSINESS internet routers for free public use. If you are near businesses and pick up their XFinity wireless signal, you can attempt to use it. Please note that this is not true for residential/home XFinity service.
- Some families may qualify for Comcast's Internet Essentials or CenturyLink's Lifeline program, providing low cost in-home broadband service. Families must apply and meet program requirements.