

My Hardware Setup for Online Teaching

By Timothy Ang



“

This is a ***beginner*** guide for those who want to get started with their online teaching setup

Check out the ***underlined links*** for more information

I will ***send a pdf*** of this at the end of the presentation

Today's Presentation

Tips & Shopping

Desk & Chairs

Ergonomics & Organizing & Productivity

Internet

Computer

Monitor

Camera

Lighting

Background

Audio (Microphone & Headphones)

Other Accessories

Questions & Suggestions (5 min)

Group Discussion (10 min)

Questions before Buying

- What's your budget?
- How long will you use it for? (short, mid, long term)
- Who's using it? (just you, the family)
- What will you use it for? (simple editing, teaching, hobby, research, video production, home theatre)
- Who's your audience (students, boss, coworkers)
- Where are you setting up? (school, home, office)

Shopping Tips & Links

- Aim for incremental changes. Simple is best.
- When upgrading consider the effort, learning, and resources involved
- Have a tape measure when going out to buy
- We are in the age of private labels
- Amazon review filters: <https://reviewmeta.com/> or <https://www.fakespot.com/>
- Review magazines in Japan / magazines ([日経PC21](#), [Monoqlo](#))
- [Kakaku.com](#) for general price comparing

Desks

- Types: standing (fixed or hydraulic), regular (flat or L shaped), DIY hardware project
- What is the optimal desk size? (120x60cm)
- Consider legroom & knees space
- Check for cable hole access
- Accessible reach area



Chairs

- Types or medicine ball
- Look for: neck rest, breathability, adjustable height
- Measure your cushion and the size of chair
- Don't cheap out on your chair

1 Lumbar Support

A design quality meant to provide apt support to the muscles and skeletal structure of the lower back.

2 Flip-Up Arms

Adjustable arm rests that can be pushed upwards, providing the feel of a chair with no arm rests.

3 Tilt Adjustment

The chair's tilt resistance can be increased or decreased by preference.

4 Swivel

The seat's ability to turn in any direction without moving the base.



5 Triple Paddle Control

Three levers allow for control over your seat height, back tilt position, and knee tilt.

6 Infinite-Locking Back Angle

A lever changes the tilt of your chair so you can personalize its position and then securely lock it in place.

7 Reclining Backrest

The seatback's ability to tilt backwards to help relieve pressure on the lower back and increase circulation.

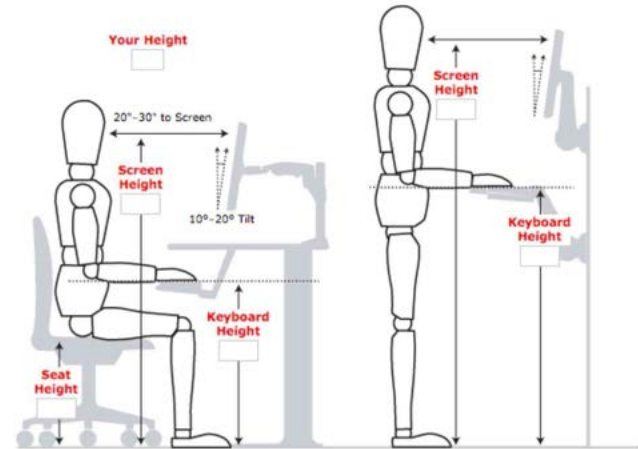
8 Height-Adjustable

The chair's height can be adjusted to accommodate the height of the user.



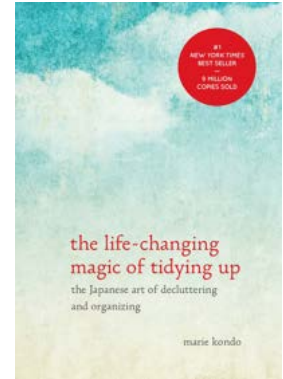
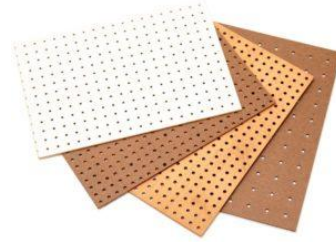
Ergonomics

- Mostly preventative
- Maintain a proper posture
- Wrist should be flat on desk
- Adjusting constantly in the beginning
- Exercise for 30 minutes every day
- Stretching exercises
- How to Setup your Desk for Ergonomics



Organizing your Workspace

- Cable management (article)
- Perforated hardboards with hooks/pegs
- Kabe Bijin
- Picture stands and phone holders
- Acrylic boxes, wooden trays, polypropylene storage, filing cabinet
- Monitor stand
- 2x4 wood holders
- Put everything on wheels
- Stores: Daiso, Muji, FrancFranc



Productivity at Home

- Designate a work area, sketch your layout
- Work setup routine & the 10 second startup
- Room temperature at a comfortable 25-26 C
- Use as much natural daylight as possible
- Have a dress code
- Manage time by Pomodoro technique (blocks of 45 min)
- Humidifier or air purifier
- Diffuser or candle for fragrances
- Be ready to leave when it's too much
- Turn everything off at 9pm
- Meditating Apps (Oak)
- Have a pick me up playlist

Internet Connection

- Factors for bandwidth: data speed, signal quality, network expandability
- Types: Always choose physical cable over Wi-Fi
- When possible Cat 5e or 6 to future proof, brand doesn't matter
- Check devices connected to your network
- Test your internet speed



Required Internet Speeds

For 1:1 video calling:

- 600kbps (up/down) for high quality video
- 1.2 Mbps (up/down) for 720p HD video
- Receiving 1080p HD video requires 1.8 Mbps (up/down)
- Sending 1080p HD video requires 1.8 Mbps (up/down)

For group video calling:

- 800kbps/1.0Mbps (up/down) for high quality video
- For gallery view and/or 720p HD video: 1.5Mbps/1.5Mbps (up/down)
- Receiving 1080p HD video requires 2.5Mbps (up/down)
- Sending 1080p HD video requires 3.0 Mbps (up/down)



For screen sharing only (no video thumbnail): 50–75kbps

- For screen sharing with video thumbnail: 50–150kbps
- For audio VoIP: 60–80kbps

For Zoom Phone: 60–100kbps

Just for reference, here's how data measurements break down:

- 1 megabit (MB) = 1000 kilobytes (Kb)
- 1 megabyte (MB) = 8 megabits (Mb)
- 1 gigabyte (GB) = 1,000 megabytes (MB)

	順位	先月	プロバイダ	平均スピード (Mbps)	MB/s 換算値	主な 対象	価格等
→	1	1	 So-net	38.9	5.0	個人	光(戸建て)5,740円 (マンション)4,338円 モバイル4,182円
↑	2	22	 SANNET	29.2	3.7	個人	光(戸建て)15,200円 (マンション)3,250円
↑	3	4	 bit-drive	27.4	3.5	法人	NUROアクセス 18,850円～
↑	4	5	 K-Opticom	25.8	3.3	個人	光(戸建て)3,278円 (マンション)3,278円
↑	5	6	 UCOM	25.4	3.3	法人	光(マンション)3,038円
↑	6	10	 アルテリア・ネットワークス	23.7	3.0	個人	個別見積もり、もしくは不明
↑	7	9	 auひかり	23.6	3.0	個人	個別見積もり、もしくは不明
↓	8	2	 中部テレコム ケーンション	23.6	3.0	個人	光(戸建て)4,748円 (マンション)4,510円
↓	9	7	 ASAHIネット	22.6	2.9	個人	光(戸建て)4,824円 (マンション)1,742円
↑	10	11	 J:COM ジェコムウエスト	22.3	2.9	個人	4,348円/月

通信量・サイズごとの比較ランキングもご覧ください。
 総合部門 | ギガファイル部門(1G～) | ミドルファイル部門(100M～1G) | ライトファイル部門(<100M)

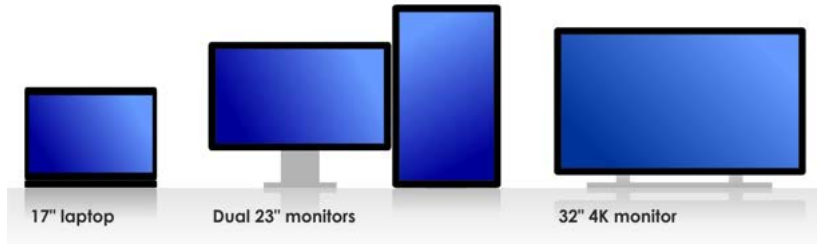
Computers

- Types: desktop, laptop, tablet
- Mac or PC?
- Windows, Apple OS, Linux all work. Bootcamp
- Recommendation: new IMac with M1 chip
- Suggested min. specs: Processor i5 2.6Ghz. Mem: 8 MB. 125GB SSD drive.
- Tips: elevate your laptop, compressed air, surge/overload protectors
- Website: <https://pcpartpicker.com/>
- Clean your PC | Mac



Monitors

- Uses: research, teaching, email, editing
- 1 is ok. 2-3 monitors Windows, Apple.
- Offer physical and productivity benefits
- 24 inches 1080p (price performance space), 27 1440p, aspect ratio 16:9, refresh rate 60Hz
- TV as a monitor
- Window screens per monitor
- Look for USB ports and switches
- Use iPad as a monitor: Sidecar, Duet or cable
- Monitor arms for swivelling
- Monitor buying guide
- Brands: Dell, AOC, Acer, Viewsonic



Camera

- Camera shot angles & shot sizes
- Types: webcam, phone, tablet, action camera, DSLR (digital single-lens reflex) camera
- Quality: 360-480 (some laptops), 720p/1080p (new standard)
- Cameras uses: whiteboard, monitoring, overhead projector
- Webcam anything above ¥20,000 just get a DSLR
- Software to turn phone/tablet webcam: Epoccam, Droidcam & CameraVision
- Brands: Logitech, Razer, Elecom



DSLR as a Webcam

- Why: quality and bokeh / depth of field
- Connection: USB or HDMI (capture card)
- Lenze to use: fixed or adjustable / zoom
- Focal length: Lower the wider, 17-28mm recommended
- Bokeh setting: F-Stop 1.8-3.5
- Clean output, enable HD on Zoom, mirror camera
- Some issues: overheating, time limit, power supply
- DSLR accessories: mounts, jaw arms, and tripods
- Advanced settings: Digicam (win) ODslr (mac)

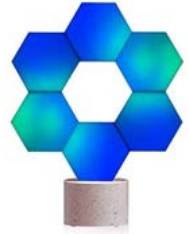


Lighting Basics

- 3 point lighting
- Light patterns
- Light sets the mood (warm vs. daylight)
- Prepare morning, afternoon, and night looks (here and there)
- Use a Lux light meter Android / Apple

Lighting

- Types: ring lighting, desktop lamps, LED panels, LED strips
- Maximum of two (key & fill)
- Play around with the lights in different positions
- Get the adjustable settings ones, clips and jerry rigging
- Avoid umbrellas, bulbs, and softboxes as they are bulky



Backgrounds and Whiteboards

- Types: natural, virtual, green
- Green screen (roll up vs. panel type)
- Physical whiteboard or an OBS whiteboard



Microphones

- Audio over video, it's the most impact you can make
- Types: USB, lavalier, field recorder
- Try to get it outside of the frame
- Be careful of microphone feedback
- Accessories: clamp / arm, pop filter, dead cat, shock mount
- Fun idea: Voice mod app
- Polar patterns: omni (acoustic), cardioid (interview)
- Microphone test sample audio site
- Brands: Rode, Blue Yeti, Sony



Headphones / Bluetooth

- 20/20 for your ears
- Types: Headsets, earbuds, or headphones
- Consider the weight
- Brands: Sony, Apple Airpods, Elecom
- BXI sound panels, foam, cork boards
- More about audio: [Curtis Judd](#)



Other Accessories

- Mechanical keyboards (Ducky, Keychron)
- Coffee (Chemex, Moka Pot, etc.)
- Plants & benefits (succulents, pothos, etc.)
- Usb Desk Hub (Belkin, Anker)
- Scanners
- USB warmer
- Pads / mats
- Wacom tablet



Group Activity

Look at these pictures and suggest any improvements or personal changes you might make to them.

What's quirkiest thing you have on your desk or in your office right now?

Tell your groupmates about your current setup.



Thank you!

Any suggestions/questions?

Contact me at timothyang@gmail.com or [Facebook](#)

Here's my [Recommend List](#)