

Music Education Technology Cram Sheet

For each component below, be able to identify the following information. :

- What does it look like?
- What does it stand for?
- What is it used for?

Computer Cables

Excerpted from <http://pc-level.com/2010/01/types-of-computer-cables/>



Analog VGA interface (**Video Graphics Array**) remains a standard way for connection between a computer and monitor. Today, however, it is almost replaced by the digital interface DVI. VGA consists of 15 contacts arranged in three rows, each of which corresponds to three separate channels – red, green and blue.



USB (**Universal Serial Bus**)

Today it is the most popular standard for connecting various peripheral devices to a computer. Using USB you can connect almost everything to your computer. There are 3 versions of USB:

USB 1.0/1.1 – offers data transfer speeds up to 12Mbit / s and uses four wires (2 for data and 2 for power supply)

USB 2.0 – This is the most commonly used version of this type of interface. It provides higher data transfer rates (480 Mbit / s) and compatibility with older versions of USB.

USB 3.0 – provides max. data transfer rate up to 4.8 Gbit / s (600 MB / s theoretical speed) and backward compatibility with previous versions.



HDMI or **High-Definition Multimedia Interface** is used for transmission of high-definition video between digital video sources (like PC graphic card or Blue ray player) and digital LCD monitors. HDMI provides the transmission of DVI video signals and audio signals simultaneously. HDMI is backward-compatible with DVI digital video (but only with DVI-D or DVI-I not DVI-A) used on modern computer monitors and graphics cards.



FireWire

A FireWire is very similar but faster than USB (offers speeds up to 400Mbps in 1394a and 800Mbps in 1394b). It allows you to send data to and from high-bandwidth digital devices such as printers, scanners and digital camcorders



RJ 45 cables are used to connect computers to local area networks. There are two basic types of RJ 45 cables – straight-trough and crossover. A straight-trough cable is required to connect a computer to hub/switch, while if you want to connect two computers directly you will need a crossover cable.

AV (Audio/Video) Cables

Excerpted from: <http://www.bestbuy.com/site/Electronics-Promotions/Cable-Guide/pcmcat265300050000.c?id=pcmcat265300050000>



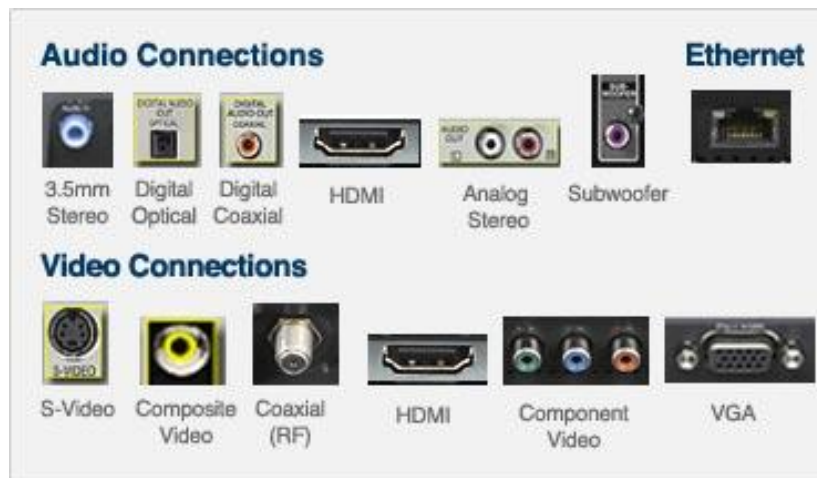
RCA Cable (also called 3.5 mm AV cables)

Connectors or Composite video is the next best home theater video connection after HDMI, component video and S-video. It is not capable of high-definition video or 3D. Like component video and S-video, this cable is only for video, and does not transmit audio signals. However, it is often bundled with an analog stereo audio cable (yellow, red and white plugs) for convenience. Typical components that would use this connection are DVD players, VCRs, A/V receivers and non-HD TVs/projectors.

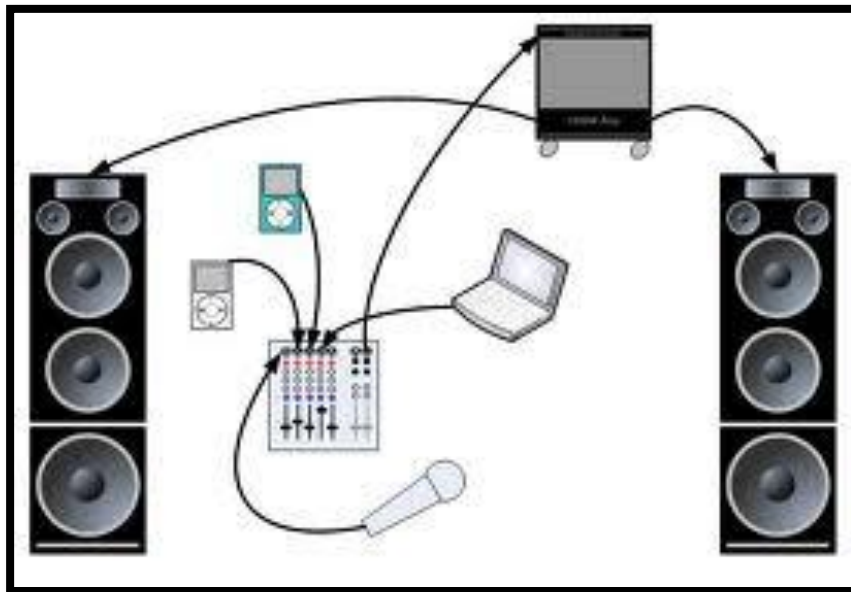
Red and White: Audio left / Audio Right
Yellow: Video (optional)



Coaxial cable (also known as **RF cable**) is typically the connection used for A/V signals coming into your home — from a cable company, satellite dish or antenna. This cable supports both audio and video signal transmission. Typical connections with this cable are for incoming A/V signals directly to a TV or to a set-top box from a cable or satellite provider. If you have an older TV with only this type of input, devices such as DVD players or gaming systems can be connected to the input using an optional RF modulator.



Sound System or PA (Public Address) System

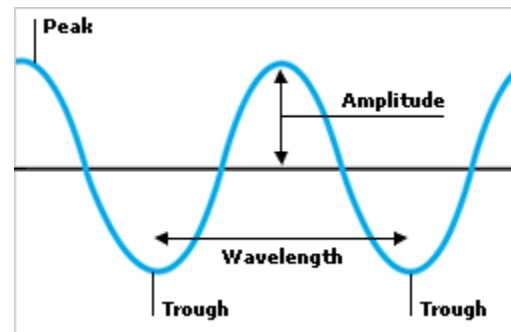


Also note:

- If you are using monitors
- If you have wireless microphones

Specific terms to know:

- Dynamics:
 - **Amplitude:** measures the distance from peak to trough of a sound wave (dynamic level)
 - **Decibels (dB):** unit of measurement for amplitude
 - Normal speaking voice: approx. 65 dB
 - Rock concert: approx. 120 dB
 - Average baby crying: approx. 110 dB
 - Sounds above 85dB can permanently damage hearing
- Pitch:
 - **Frequency:** Measures one complete cycle (left to right) of a sound wave (pitch level)
 - **Hertz (Hz):** unit of measurement for frequency (represents number of sound wave cycles per second)
 - A440 = 440 Hz (the sound wave cycles 440 times every second)



Excerpted from <http://www.dangerousdecibels.org/virtualexhibit/6measuringsound.html>
And <http://www.noisecancellingearbuds.net/how-does-noise-cancelling-work>

Sound System cables

3-pin XLR or Microphone Cables

NOTE: XLR has no real meaning

3-pin XLR Male



3-pin XLR Female



1/4" TRS Plug (Mono and Stereo)

1/4" Mono Phone Plug (TS, Tip-Sleeve)



1/4" Stereo Phone Plug (TRS, Tip-Ring-Sleeve)



Tangent

DMX = Digital Multiplexing

Lighting boards use DMX cables

On some sound and lighting boards, DMX and XLR cables are interchangeable



File Extensions

Refer to: <http://www.fileinfo.com/filetypes/common>

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Focus on

- Text files: doc, docx, msg, rtf, txt, wpd, wps,
- Data files: dat, PPT and PPTX only
- Picture/graphics files: bmp, gif, jpg, png, psd, tiff
 - (also called raster files)
- Audio files: aif, mid, mp3, mpa, wav, wma,
- Video files: avi, flv, mov, mp4, mpg, wmv
- Page Layout: PDF
- Spreadsheet: xlr, xls
- Web: HTM, HTML, and XHTML