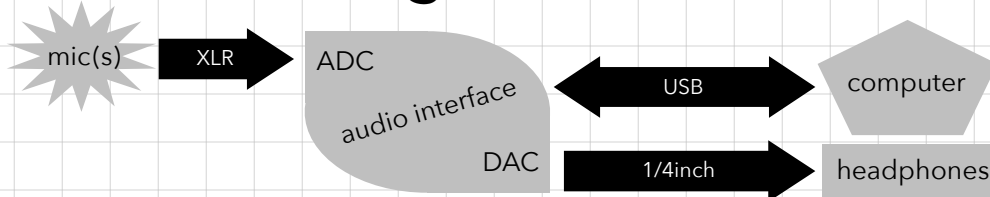


## Sound Recording: a creative task! there is no right way!



### Mic Placement (requires experimentation and adjustment)

- mono (single) mic individual instruments:
  - instruments need a certain distance from mic to create character and timbre
- stereo (two) mic ensemble or solo performance = **experiment with different stereo mic techniques!**
  - closer for less of the room's natural reverberation sound
  - further away for more of the room's natural reverberation sound
  - the further your mic is away from your source, the more preamp gain you need, and thus you end up raising your noise floor
  - classical music stereo mic placement = 4-20 feet away and 7-10 feet above performers' floor level

### Audio Interface

- sample rate = number of times per second that the signal voltage is measured
  - use 44.1kHz or 96kHz for recording audio alone
  - use 48kHz for recording audio to sync with video
- bit depth = use 24 bit = this is the resolution at which the amplitude of the signal voltage is measure

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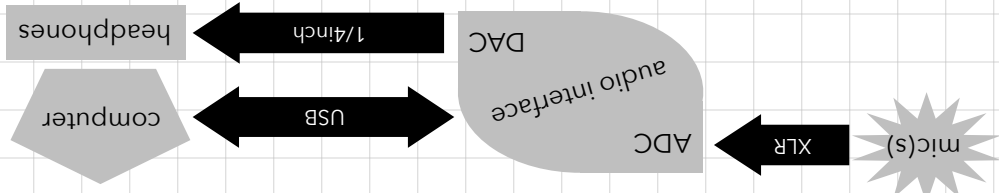
### Gain Structure = finding the Goldilocks setting (utilizing the full resolution you have)

- slowly bring up preamp gain (or trim) knob as performer sounds into the mic to find "Goldilocks" setting = between noise floor and distortion (clipping) ... usually with the loudest sound peaking on the VU meter around Unity (0dB) or 2/3 of full scale
  - too low requires a boost further down the signal chain (which raises the noise floor)
  - too high allows for periodic distortion (clipping ... going into the "red")
  - give yourself enough headroom so unanticipated loud dynamics do not clip

### Computer

- lossless audio files (WAV, AIFF, CAF) = highest quality
  - use through entire recording/editing process (note different maximum size for each ... and make sure your DAW is setup to record unlimited time)
- lossy audio files (MP3, AAC, OGG) = these discard data in order to compress and save space
  - save as lossy **ONLY** when you are completely done with all editing and are ready to stream online (in which case use CBR) or to save space on a device (in which case VBR is better)
- bit rate = amount of data (bits) required to represent one second of audio
  - bit rate = bits per sample (bit depth)  $\times$  samples per second (sample rate)  $\times$  number of channels
  - bit rate of CD quality ==> 1411.2kbps =  $44,100 \times 16 \times 2$  (4min song would be 40MB)
- tips:
  - turn off all notifications and wifi
  - close any unnecessary programs
  - disable auto updates
  - use caffeine app

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