

SOUND WITH STEVE

PEIMEA AGM and Professional Learning Day

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BASICS

The following equipment is a list of basic requirements for *live* sound:

What your school already will likely have:

- Mixer



- 2 'main' speakers



- Vocal microphones



- Enough XLR and speaker cables

You can get by with the above equipment but to make your equipment more versatile and accommodate many live situations your school will need:

- 2 monitors



- Instrument microphones



- Condenser microphones



- Wireless Headset microphones



- DI (Direct Input) boxes



- Cable snake



- Adapters

2 Most Common PA Setups

Powered mixer with unpowered speakers

Unpowered mixer with powered speakers

The power has to come from somewhere. Plugging them in does not assume they have power. They need a built in power amplifier to generate power. Powered **mixers** will be heavy and bulky and will have cooling vents and a wattage value on the back.

Powered **speakers** will have a switch to turn them on and off as well as a levels and volume knob.

Pros and Cons of each system

Powered mixer with unpowered speakers

Can plug in anywhere and only needs 1 outlet.

Need to know a lot about wattage and impedance

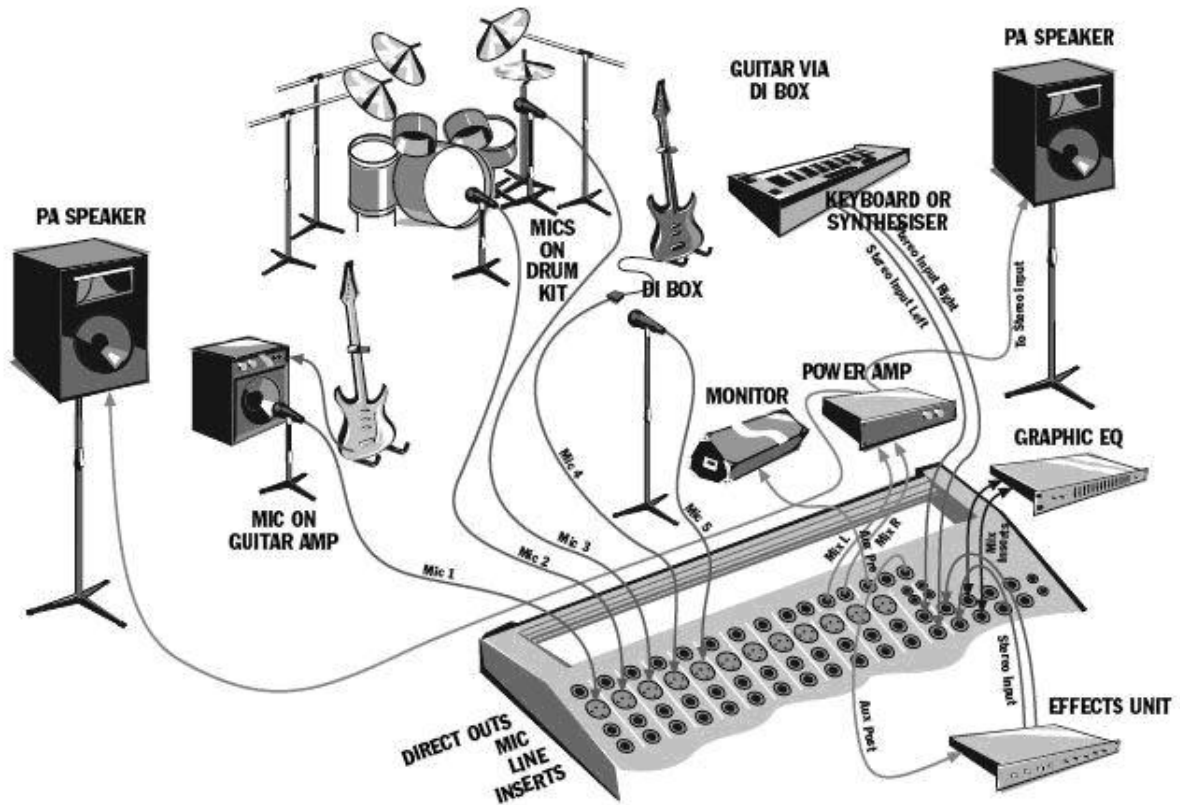
Unpowered mixer with powered speakers

Need a lot of power cables and extension cords using multiple outlets.

Can easily mix and match speakers to customize setup without worrying about impedances.

Setup

Below is a typical setup for live sound. In the two setups we learned about, power amps are built in to either in the mixer or the speakers. In this setup, neither have a built in power amp so have to have a separate power amplifier to power both. Typically it is built into one or the other. Also, graphic EQs and effects units are more often built into the mixer and likely would be built in using the setups described in the presentation. Everything else is the same:



BASICS OF SOURCE SOUND

Source sound is what you do when you plug in an iPod or a laptop to a sound system or a set of speakers. Here is a list of cables and equipment you need for this:

- Mixer
- 2 main speakers
- 1/8" or 3.5 mm male to dual male RCA



- 1/8" male stereo to dual male 1/4" mono



- Male to male dual RCA



- Male to male 1/8" cable



SOME THINGS TO REMEMBER WITH SOUND

- **Just because your speaker goes to 10 does not mean that it should ever go to 10.**
 - This will blow your speaker. You never run a marathon at full tilt because you will wear out much quicker.
- **Speech is different from singing**
 - Understanding speech relies on the high frequency sounds in words. Adjust the high frequency knob on that channel. Without them, it is very mumbled and incomprehensible.
- **Gain is how much comes into the mixer. Volume is how much gets out.**
 - There is a balance between the two. Some inputs will need more gain while others will need very little.
- **If you think of the mixer as a “prison guard” and the speakers as the “gate keepers” it will help you understand the basics of how sound works.**
- **Regular vocal and instrument microphones work without phantom power. Most condensers and some other types of microphones need phantom power.**
 - Look for the 48v phantom power button at the top or the back of your mixer if everything is set up properly but the microphone is not working.
- **If you are using a performance example from *Share the Music* or any music that pans left and right through your mixer you will need the 1/8” male stereo to dual male 1/4” mono cable mentioned above.**
 - 1/8” stereo to dual male RCA will work too but you won’t be able to control its volume separately from the rest of the mix.
- **Headphone out is the same as speaker out. If you see a headphone jack on an instrument like a keyboard, that is how you plug it into the mixer or into the DI.**

- **Monitors plug into Aux outs and can be controlled separately from each channel.**
 - Performers need to hear themselves, so do kids. If you are using a backing track or any type of accompaniment in a performance, monitors are essential.
 - You may need an end adapter for this.