



Classroom Live Streaming on a Budget

A guide to compiling a budget-conscious live streaming setup for your classroom or school

Welcome to the world of live streaming.

Whether you are recreating weather reports in your classrooms, live streaming high school sports or broadcasting your morning announcements, having access to a quality live streaming set up can open up new avenues for interactive education.

Starting from scratch can be a daunting prospect, so we have put together this e-book to help you understand the basics, and offer suggestions that will help you to establish a successful, budget-conscious live streaming setup for your school or classroom. Learn what tools you need to capture content, repurpose it for live streaming and share it across the school, state, country and even the world.



Cameras

When choosing a camera there are a few things to keep in mind:

- *How complex is the event you are streaming?*
- *Does it require multiple cameras?*
- *Do you have the students to operate one, or many cameras?*
- *Do you need to zoom in or pan left and right?*

There are thousands of cameras out there, but staying within budget can be tricky. Here are a few low cost options.



iOS Devices (iPhones, iPads) can be used as HD video sources. While not necessarily the cheapest option, anyone with an iPhone or an iPad can install the free WirecastCam app, turning an Apple device into a “free” camera.

Webcams are the cheapest, lightest and easiest to use, but often lack fine-tuning controls like zoom or focus. They will capture the content in high quality, but you may be limited in how creative your cinematography can be.

- ▶ Logitech C930e (\$130)
- ▶ Microsoft Lifecam Studio (\$100)



HDMI cameras are fantastic. Although on the more expensive side, they offer much more control and a friendlier user interface. They do, however, require a capture card (an extra couple hundred dollars) that plugs into your computer, allowing HD video to be processed for direct streaming.

- ◀ **The Canon Vixia HF R400** (\$200) is a solid, budget-conscious HDMI option. On the lower end of the price range, the HF R400 is just the beginning of a great selection from Canon. Be sure to check out other Vixia line cameras if your budget can support them.
- ◀ **The Blackmagic Design Intensity Pro** (\$190) capture card works well on both PC and Mac and is a great starting point, but by no means is the only option out there.

Microphones and audio mixers

Nothing ruins a great broadcast like bad audio. No matter how fancy your cameras are and how crisp your videos come out, a bad audio track will immediately deter viewers. Although most cameras come with built-in mics, an additional external audio source will greatly improve the quality.

Microphones and sound mixers are necessary for large spaces, so make sure that you connect your audio into your stream, as well as the cameras.

If you don't already have the necessary equipment, take a look at these microphone recommendations:



◀ Audio Technica ATR2100 (\$60)

With both a USB and XML output, you can run this mic through your sound system or through your computer.

▶ Pyle-Pro PDMIC58 (\$13)

One of the cheapest, highest rated microphones on the market.



▼ Shure PG185 Lapel Mic and Wireless System (\$299)

Highly rated “invisible” lapel mic. A bit on the pricey side, but unparalleled for educators on the move!



Computer hardware & software

Having the right tools is essential for a successful live stream. Quality cameras and microphones will need quality support as well, so including powerful hardware and software to your streaming setup will provide the necessary groundwork for a smooth and clear stream on a consistent basis.

An Apple or Windows based computer, whether laptop or desktop, outfitted with streaming software can convert your raw camera footage into compact and streamlined content, ready for immediate upload.



Hardware

A computer to run the software and act as the main broadcast hub could be the most expensive part of setting up a live stream for your school. If you already have a computer that can be spared for a couple hours, you may be in luck. Whether repurposing an existing computer or buying a new one, we recommend the following specs:

- *Mac or PC*
- *Laptop or Desktop*
- *High definition display: 1280x720*
- *i7 Intel Processor*
- *8GB RAM*
- *1GB Video RAM*
- *Price starting around \$600*



Software

Your computer needs software that can encode your live stream, and ideally give you some production features. Wirecast is a user friendly broadcast software that allows for multiple camera switching, adding in text, graphics and slides as well as encoding your stream and exporting it directly to the Internet. Add in the free Desktop Presenter app to include PowerPoint or Keynote presentations along with your live video streams to allow your students to follow along. (Starting at \$495; Educational institutions eligible for a 10% discount.)

Where will you send your stream?

You'll also need to figure out where you want to stream your live content. It is possible to set up your own video streaming server, so if your school has its own internal network, you are good to go! If you don't have this option, a content delivery network, or CDN, is your best bet.



It is worth spending some time researching which streaming service works best for you. You might want to consider your bandwidth needs (the more often and longer your streams, the more bandwidth you will need), privacy settings and potential services the CDN may be able to offer outside of live stream hosting.

Here are just a few options:



[YouTube.com](https://www.youtube.com)

Not just a video hosting platform anymore. YouTube offers an easy-to-use live streaming platform as well.



[TheCube.com](https://www.thecube.com)

A great platform for streaming public events. Streaming is free as long as you are officially connected to your school.



[Ustream.tv](https://www.ustream.tv)

Plans starting at \$99 per month for 100 viewer hours and unlimited storage.

Cost of setup

Total cost for this setup will be around \$1200-\$3000+ depending on your computer and camera setup. If you already have a computer, it won't take much to get started!

- *Camera: \$100-\$200+*
- *Capture Card: \$190*
- *Microphone: \$10-\$300*
- *Wirecast: \$495
(Not including 10% Education discount)*
- *Computer: \$600+*

*All prices current as of June 2015



Helpful tips

Bandwidth can be a stumbling block. Make sure the network you are streaming on has at least a 700Kbps upload speed. If you are streaming in HD, make sure to clock in at 3000Kbps consistently. Check your upload speed at SpeedTest.net (which measures in Mbps, so just multiply by 1000).

Camera tripods can be quite expensive. If you have a few boom mic stands lying around, they can double as a low cost alternative for webcam tripods!

Students are an indispensable resource! They are all audio techs, videographers, and on-camera talent in the making. Involving them in every step of the process will be both a valuable learning experience and cost effective.

Don't hesitate to contact us. We have been in this industry for over 16 years. We know video!

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