

# Getting started as a video (re)creator

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## [Step 1: Get your kit](#)

Making videos The Khan Academy Way™ requires several software and hardware components. You'll need:

### Hardware

- Your computer
- A drawing tablet of some kind (this is not a requirement but a recommendation: avoid small tablets for this work.)
  - Some people have used iPads in the past! If you're doing this, plug the iPad into your computer and use it as a secondary display that you can draw on. When you record audio from the onboard mic on the iPad, videos just sound like your hand repeatedly brushing against the screen.
- A microphone that can plug into your computer

### Software

- A program that can capture your screen (Quicktime for Mac, OBS for Mac or Windows)
- The appropriate software driver for your tablet and operating system
- A program where you can draw and use multiple layers (like Photoshop)
- A program that can edit video (like Adobe Premiere Pro)

- A program that edits sound (like Audition)
- Optional: a program that can edit/animate titles or text (like After Effects)
- Also optional but convenient: Adobe Media Exporter

## [Step 2: Get your templates](#)

1) Use our [accessible color palette](#), or use your drawing program's dropper tool to pick up the colors below:

### On white

	<b>Off black</b>	#21242C
	<b>Gray</b>	#717378
	<b>Red</b>	#D92916
	<b>Blue</b>	#1865F2
	<b>Purple</b>	#8A4FFF

### On black

	<b>White</b>	#FFFFFF
	<b>Pink</b>	#FB73BE
	<b>Coral</b>	#FF8D71
	<b>Yellow</b>	#FFE066
	<b>Teal</b>	#59F3CE
	<b>Light blue</b>	#65D0FA
	<b>Blue</b>	#4984F2
	<b>Purple</b>	#A87DFF

We use light blue, pink, coral, yellow, and teal as our drawing colors (don't use the red - there should never be red in Khan videos!).

## [Step 3: Get comfy with your drawing program](#)

Sal Khan uses [Sketchbook](#) (which is free), but you can use whatever software you like, as long as it can support:

- adjustable brush/drawing tool size
- adding external images (like dropping in a stock photo)
- layered compositions
- straight lines!
- the ability to set palettes of pre-set colors
- pressure-sensitive interactions with your tablet

#### Step 4: Get comfy with your tablet

- 1) After you download the appropriate drivers for your tablet, plug in and calibrate your tablet! This will be different for each device, but when you install the drivers for your tablet, you should be able to access some kind of utility program to set pen sensitivity, calibrate the drawing area, etc.
- 2) Open your drawing program of choice!
- 3) Practice writing for a while. Your handwriting should be legible, fairly large, and seem like a real person is writing on the screen with a pencil, not with a mouse.
  - a) If you've got "bad handwriting": practice by writing slowly, on graph paper—some of us have also had success by switching to all-caps handwriting. You can also use a hybrid approach, and include pre-typed text in your compositions to limit the amount of writing you have to do (this works especially well for large passages of text, like primary documents, that you can then annotate by hand).

#### Step 5: Get comfy with your content

- 1) Practice explaining it to someone: a coworker, a relative, a houseplant. Let them interrupt you when they're confused, and see if you can work the subsequent explanation into your finished delivery. You don't have to plan everything exactly—a Khan Academy video benefits from a touch of spontaneity, and it will be best if it doesn't sound like you're reading.
- 2) Do whatever visual pre-composition you need to do; most images can be re-used from the English video, if that's not the case:
  - a) A great place for free use images is [Wiki Commons](#).
  - b) It's also totally okay to trace something: put a photo in one layer and start drawing over it in a second layer. When you've finished, make the photo-layer invisible!

## Step 6: Start talking

- 1) If your microphone has a stand, mount it on the stand and place it so that it sits comfortably in front of your face without impeding your view of your tablet or notes.
- 2) If you have a mic with adjustable settings:
  - a) Your microphone may have three arcane runes on the back: these are the microphone's *pickup patterns*. One looks like an hourglass (bidirectional), one looks like a circle (omnidirectional), and the third looks like a butt, or a heart (cardioid). Set it to that one; that's the 'just one person talking' setting.
  - b) Check your sound settings before you record, because it's just as bad to be too loud as it is to be too quiet; this too-loudness is called *peaking*, and you want to avoid it. Aim for hitting the **three-quarters** mark on the volume monitor. If your mic has a preamplifier or an audio interface, you probably know a lot about at-home sound engineering already!
- 3) Position your mouth about a fist's width away from the mic; this is the optimal speaking distance. You will want to try to keep your face about the same distance from the mic throughout your video or you'll get awkward changes in volume in your finished video.
- 4) Practice enunciating your words clearly and brightly. You will very quickly discover all of your verbal tics, but you know what: self-knowledge is a gift. Mostly.
  - a) It is best to sit upright with an open frame (don't slouch and compress your lungs; your voice will come out strained). Breathe through your diaphragm, and give your delivery some oomph.
  - b) Authenticity is a construct, BUT: do your best to sound like the friendliest version of yourself: speaking as you normally might in a conversation can come across a little unenthusiastic or flat. The voiceover component of these videos is a delicate tightrope walk between cheerful and cloying—remember that you're trying to sound like a friend or an older cousin or relative explaining a concept to one student. Think of it like a podcast: you're not addressing a classroom or a lecture hall, but an audience of one. There's an intimacy there; you're directly in someone's headphones. You believe in them!

- c) If you aren't aware of your verbal tics, try listening back to your recording with your eyes closed and see if you notice anything—ums, lip-smacks, repetition. We all do 'em; it's okay!
- d) Lastly, figure out a style that works for you. The clear, friendly, and enthusiastic aspects are integral to KA style, so they're non-negotiable, but that enthusiasm should reflect your own personality and interests: you're making Khan Academy videos because we think you're fascinating, charming, and knowledgeable. Let yourself shine!

### Step 7: Get recording!

- 1) Once you're ready to make your first recording,
  - a) Set up your canvas in your preferred drawing program. We like a widescreen resolution of 1080p, which is 1920 by 1080 pixels, but if you've got a screen that supports 4K or beyond, go for it, my friend!
  - b) Set up your recording software and make sure you've selected the right microphone input (your computer's onboard microphone, if applicable, is way farther from your face than the mic you carefully set up in Step 6)
  - c) Then, **press record!** And start recording yourself writing or drawing something. Maybe say something brief; recite a poem.
  - d) Stop recording yourself.
  - e) Amazing! You have a clip of yourself writing, drawing. How do you like it?

### Step 8: Time to edit!

- 1) Save your recording somewhere safe and organized—half the battle with making videos is FILE MANAGEMENT. Not the most attractive-sounding part of being a filmmaker, but I promise that being organized here will save you tons of time in the future; I like to divide my projects into raw footage, drafts, and finals—no more "polyvalency final final 2 FINAL final LAST TIME I SWEAR.mp4"
- 2) Let's edit! These tips assume an Adobe workflow.
  - a) Create a Premiere project document. We recommend creating an overall document for a series of lessons, creating new videos (and versions) as sequences within that project file. That way you can have a bunch of neat, organized folders, proofing myself against the inevitable future where something needs to be changed later.
  - b) Start learning the [keyboard shortcuts](#)! These are optional, of course.

- c) Drag a video clip onto the timeline to create a new sequence that matches the clip's resolution and settings.
- d) Before you start editing, we recommend you to right-click on the audio track and hit "open in Audition" to run a quick leveling check.
  - i) Match loudness; if necessary, run a noise-removal process. Make sure to edit while wearing headphones, because that's likely how learners are going to encounter your video!
  - ii) Once you've completed whatever sound fixes you needed to fix, save the file in Audition and then return to Premiere, where the clip will update automatically!
- e) Cut out outtakes and errors, but try to use a light touch; the Khan Style is pretty lightweight and not super production-heavy. Leaving in some flubs is okay—it'll make you seem relatable and human!
- f) You can separate the video and the audio into two tracks by right clicking on your clip and selecting 'separate video and audio.' You may wish to do this to speed up your writing if there's a particularly long sequence of just words on the screen. We recommend doing this only after making a cut, to avoid desynchronizing a very large section of footage by accident.
- g) If you write relatively slowly in order to make your handwriting neat, you can speed it up in post! With the audio and video separated, you can use the 'rate shift' tool (shortcut: R key) to change the apparent speed of the video track. We recommend making the writing match the speed at which you speak: if it takes 45 seconds to write something, and 15 seconds to say it, grab hold of the video and speed it up until it's 15 seconds long; drag it to match the length of the audio. We recommend dragging the audio-track window so that it exposes the waveform; this lets you see what your spoken utterances look like! Makes it easier to edit around.

## [Step 9: Share your glory](#)

Once you're finished editing, it's time to export! We recommend exporting as a high-quality MP4 (H.264 codec, 'Match Source - high bitrate'), and then upload that file to YouTube. It's easier to send a YouTube link than to fling around large media files.

Make sure the link is unlisted, and let the notes roll in!

After that process, if you're editing from timestamped notes, *go in reverse order*. Trust us: going through the timestamped notes in reverse order will mean that the timestamps retain their

meaning as you chew through them, as opposed to being very slightly nudged out of the way each time until they lose their relevance.

## Appendix: Guidelines for making mobile-friendly videos

Many students will see our videos on much smaller screens than what we recorded on. Just because our content is readable on the devices we made it on doesn't mean it's readable by students on their devices. This appendix gives guidelines for ensuring legibility on small screens.

## The Rule of Four

*If tiny text your eyes abhor, then take to heart the Rule of Four*

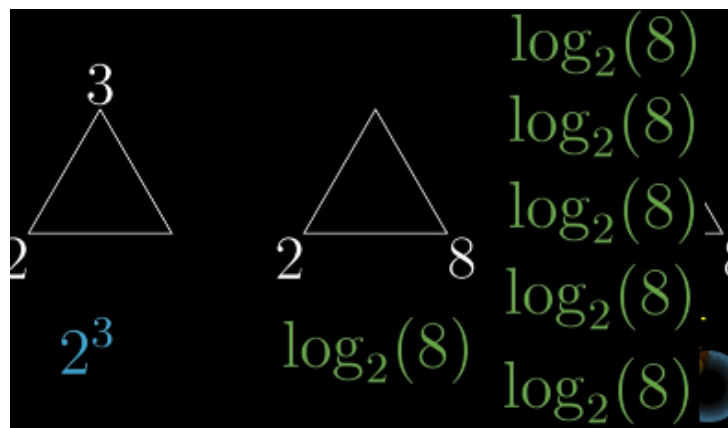
Think of your canvas as **four** quadrants and see if **four** words would fit vertically in a single quadrant.

[illegible]

If you think you can fit more than four words stacked vertically in a single quadrant, then you're probably writing too small.

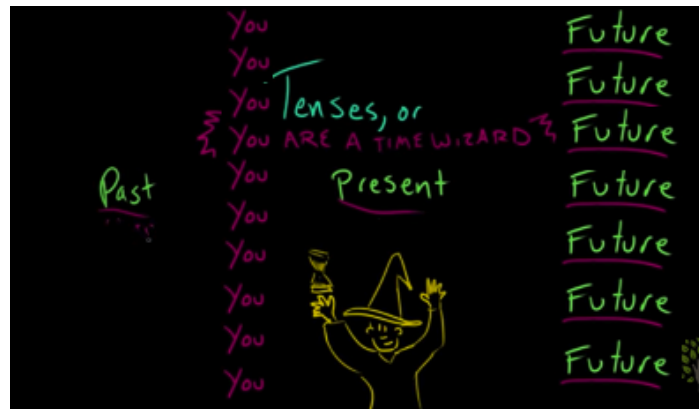
Examples:

*Super legible (2-3 lines per quadrant)*



(Note: This screenshot has been modified to help you visualize stacking words on top of each other.)

*Pretty legible (~3-5 lines per quadrant)*



(Note: This screenshot has been modified to help you visualize stacking words on top of each other.)

*Hard to read (~8 lines per quadrant)*



*Very hard to read (~10 lines per quadrant)*



A lightbulb is nonohmic if its resistance changes as a function of current. Your setup from part (a) is to be used or modified to determine whether the lightbulb is nonohmic.

(c)

- How, if at all, does the setup need to be modified?
- What additional data, if any, would need to be collected?

(d) How would you analyze the data to determine whether the bulb is nonohmic? Include a discussion of how the uncertainties in the voltmeters and ammeters would affect your argument for concluding whether the resistor is nonohmic.

Statement 1 test  
Put 2 ammeters in series w/ bulb. One before bulb. One at either side, then electrons second entering & exiting the bulb. If the currents are different, rate of electrons passing are different!

Statement 2 test  
Put voltmeter in parallel with bulb.

Nearly impossible to read (~15 lines per quadrant)

*religious pro-slavery*

"Still, though a slaveholder, I freely acknowledge my obligations as a man, and I am bound to treat humanely the fellow creatures whom God has entrusted to my charge. — It is certainly in the interest of all, and I am convinced it is the desire of every one of us, to treat our slaves with proper kindness."

*excuse? slavery not bad?*

— Letter from former South Carolina Governor James Henry Hammond, 1855

*does not agree*

*slavery condemned by Christianity*

*escaped abolitionist? North + patriotic appeal*

— Frederick Douglass, speech titled "The Meaning of July Fourth for the Negro," 1852

*Multiple choice*

*elite white intuition*

The language used in both excerpts most directly reflects the influence of which of the following?

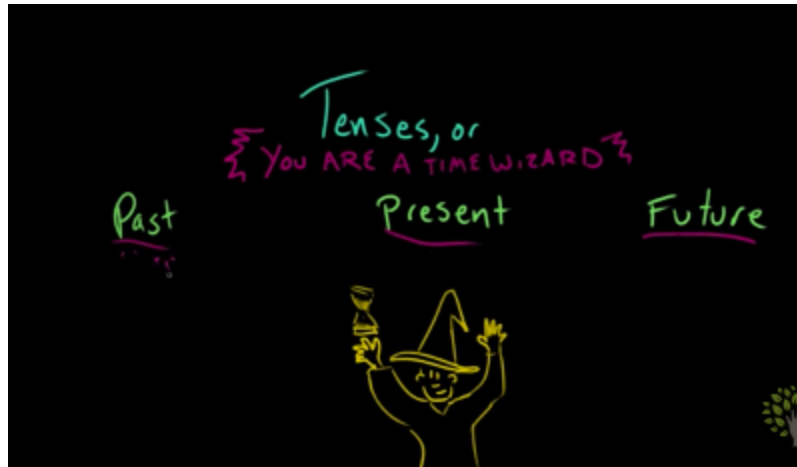
(A) The Second Great Awakening  
(B) States' rights  
(C) Manifest Destiny  
(D) American nationalism

**Should non-handwritten text follow the Rule of 4?** We can be more lenient, as typed text tends to be more legible than handwritten text. There's no exact rule here. Just use your best judgement.

## The Bolden Rule

When you write, make it thick  
Bolder strokes should do the trick

Bold writing reads well on small screens. (note, however, that the pink text below shows up poorly on a black background)



Skinny writing reads poorly on small screens because it fades into the background.

$$\sum_{k=0}^{\infty} ar^k = S_{\infty} = ar^0 + ar^1 + ar^2 + \dots$$

$$r S_{\infty} = ar^1 + ar^2 + ar^3 + \dots$$

$$S_{\infty} - r S_{\infty} = a$$

$$S_{\infty} (1-r) = a$$

$$S_{\infty} = \frac{a}{(1-r)}$$

$$5 + 3 + \frac{9}{5} + \frac{27}{25} + \frac{81}{125} + \dots$$

$$\frac{5}{1 - \frac{2}{5}} = \frac{5}{\frac{3}{5}} = 5 \cdot \frac{5}{3} = \boxed{12.5}$$

on ← Adverbs → verbs

to ←

Adjectives modify stuff (NOUNS)

Adverb-LY

slowly  
nicely  
cheerfully

slowly

Greyson ran slowly.

Pearl arranged the furniture slowly.

slightly

Vanessa was very hungry.

**Note:** It's difficult to make an official stroke width recommendation because a) some creators zoom in/out and b) stroke width is often a function of pen pressure, which behaves differently across drawing programs and devices. Thus, there is no official stroke-width recommendation.

### **Aspect ratio = 9:16**

There's been some discussion about whether or not KA should use square videos, which is what facebook and Instagram use. At the present time, we will not be transitioning to square video. Here are some reasons:

- Existing content isn't square and would be hard to convert to square.
- [YouTube doesn't support square videos](#) (yet).
- The benefits of square video remain unclear.\*

Note that an aspect ratio of 3:4 is fine too, but we default to 9:16.

\* The main theoretical benefit is that a square video takes up a larger percentage of the screen when a phone is in its default vertical orientation.

### **Cursor Size = bigger than normal**

We use our mouse cursor to point to things as we talk. If our cursor isn't visible, students have a hard time understanding what we're talking about.

Best practice is to increase your cursor size a bit, so it's large enough to see easily on a small screen. On Mac, you can adjust cursor size in System preferences (search on Cursor Size). Something like this should work nicely:

