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# FITTING IN THE BOX

## Understanding Image Sizing for Projection

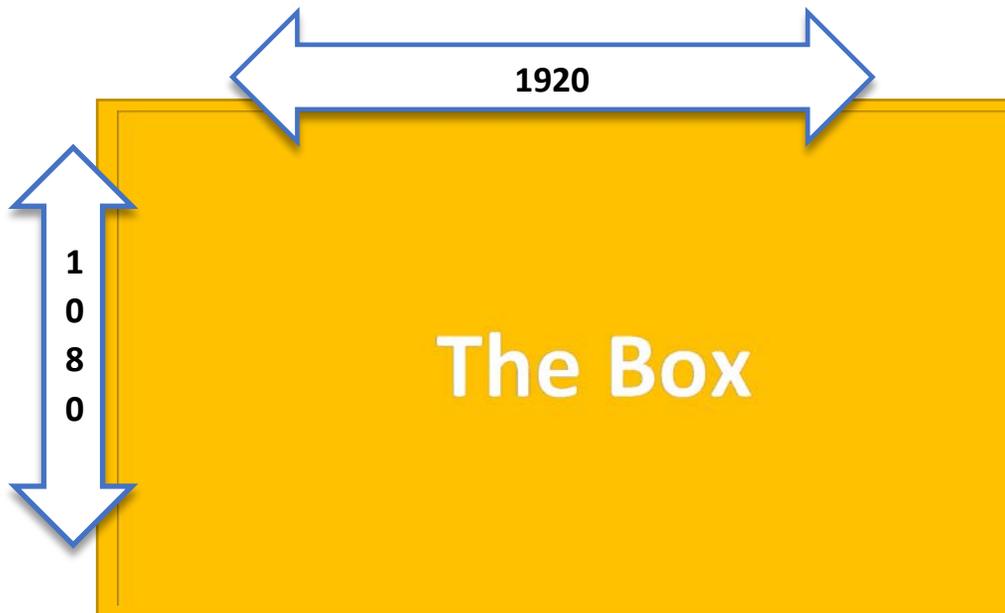
When submitting images to a Club activity such as Themes or Internal Competitions we are required to resize our images for projection. This is also true for external competitions.

There are two reasons to resize images for projection:

- 1) to make them a manageable size for uploading, and more importantly
- 2) to achieve the best possible quality when the images are projected.

### The Box

In our Club Competitions, we use a projector which has a native resolution of **1920 x 1080** pixels. This means that it has 1920 pixels across the horizontal and 1080 pixels in the vertical. This is equivalent to the aspect ratio of 16:9, or a widescreen TV. This is the “box” into which any image you submit to Club activities must fit.

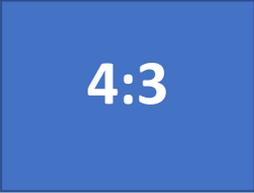
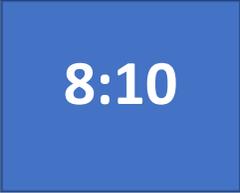


### The Challenge – Commonly used ratios don't match most projectors

Whether we are thinking about the native aspect ratio of most cameras or our artistic choices (after cropping) it is unlikely that our images will be the same aspect ratio as the projector. So, to ensure our images show as well as possible, we have to resize thoughtfully.

These are some aspect ratios commonly seen in photography. The height is held standard to illustrate the

difference in width. Notice, with the height the same, each of these common formats is narrower than the 16:9 (1920 x 1080) aspect ratio of our projector.

	Traditional 35 mm film format. This is the native aspect ratio for most full-frame and crop sensor DSLRs and mirrorless cameras. This is also the aspect ratio for the so-common 4X6 print.
	Micro 4/3 camera and many compact cameras (point & shoot).
	Common size for making prints
	Another common size for making prints. This is also the aspect ratio (16:20) for the outside edges of matted image submitted to the Crescent Beach B&W Challenge.
	This has become a very common display size. Many TVs and computer monitors have this resolution. Most importantly, it is a common resolution for projectors. This is the magic 1920 x 1080 aspect ratio of our Club projector. This is <b>THE BOX</b> .

## Cropping vs Image Sizing

Some people have been confused about the difference between cropping and resizing. Cropping is part of your editing process; it is part of your artistic decision making. When you crop an image, you discard pixels around the edges of your image, but you are not changing any of the pixels remaining in your image. You may or may not change the aspect ratio.

You will resize an image for export to upload to social media, to print or to submit to Club events. When you resize an image, you are (usually) reducing the number of pixels that make it up. To avoid distortion, you probably want to preserve the aspect ratio of your edited image. You are condensing the image into one with fewer pixels (less information). This is desirable for projection or sharing online.

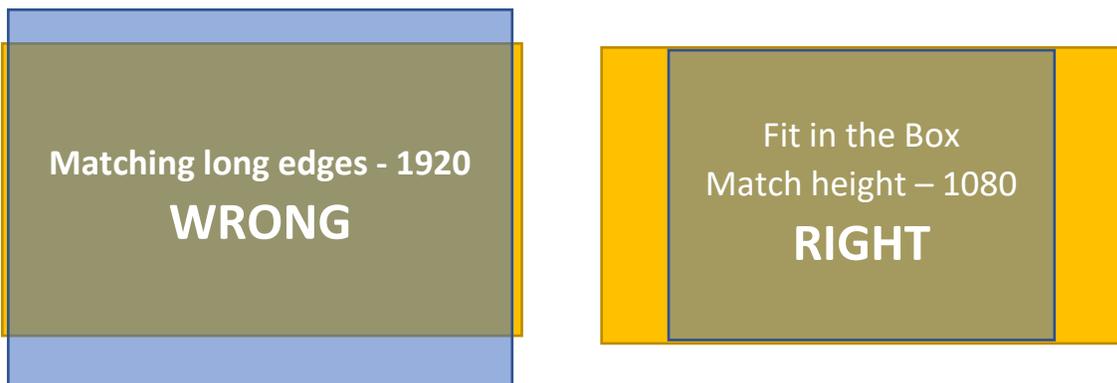
## What Size to Choose

For Club activities, the objective is to resize an image so that it will **FIT INSIDE A BOX** that is 1920 x 1080 pixels. The box is always oriented the same way; it will always be longer across the bottom.

To display the very best your image must **FIT INSIDE THE BOX**. The dimensions of your image should “match” the dimensions of the projector aspect ratio in one direction and be smaller than (or the same as) the dimensions in the other direction. That means, for our projector, the width must not be any longer than 1920 pixels **AND** the height must not be greater than 1080 pixels.

A very common mistake people make when resizing their *landscape* images for projection is to make the longest edge of their image match the longest edge of the projector scale. Most of the time this isn't going to work.

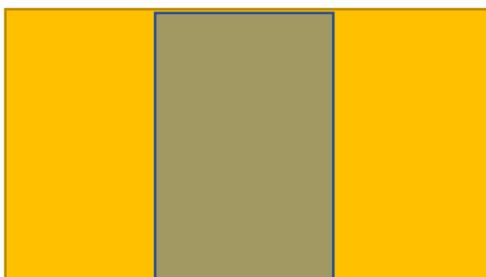
So, for example, if you have a 4:3 image and you resize it so that the long edge is 1920, it will not fit into the box. For a standard 4:3 image shot horizontally, you would have to resize the image so that the height (the short side) didn't exceed 1080 pixels.



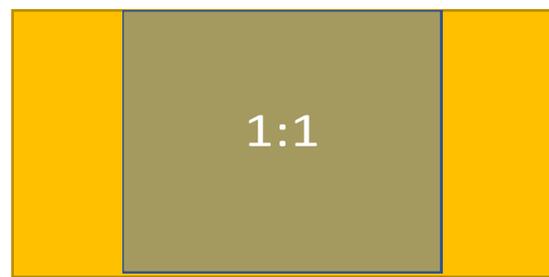
**TIP:** Except for panoramas or very wide crops, it is most likely that you will resize your image to make the height fit within the 1920 x 1080 box.

For vertical images resizing is quite simple. You will always resize the long-side, or the height, to be no more than 1080 pixels. And square images are likewise simple. Either side will be 1080 pixels.

**Vertical 4:3 – resize height to 1080**



**Square – resize either side to 1080**



## Resizing Cheat Sheet

These are some standard “print” sizes along with the pixels count for resizing. For custom aspect ratios, you and your editing software will have to do the math.

Landscape (horizontal) Images			
Original Image		Resized Dimensions	
Height (inches)	Width (inches)	Height (pixels)	Width (pixels)
4	6	1080	1620
5	7	1080	1512
8	10	1080	1350
9	12	1080	1440
9	16	1080	1920

Portrait (Vertical) Images			
Original Image		Resized Dimensions	
Height (inches)	Width (inches)	Height (pixels)	Width (pixels)
6	4	1080	720
7	5	1080	771
10	8	1080	864
12	9	1080	810

## How to Resize

The process is different in every photo editing software. However, most of the resizing processes allow to choose to change just one side while preserving the aspect ratio. Be sure to look for the setting that allows you to do that.

There are lots of online tutorials on how to resize images each different software; articles and videos abound. So, look up your own software, and get comfortable resizing images. The following list is a starting place for your research.

Photoshop: <https://www.photoshopesentials.com/essentials/image-resizing/>

GIMP: <https://computing.artsci.wustl.edu/use-gimp-crop-or-resize-digital-images>

Elements: <http://www.colourmylearning.com/2012/12/how-to-resize-by-pixels-in-photoshop-elements/>

Lightroom: <https://photographylife.com/how-to-properly-resize-images-in-lightroom>