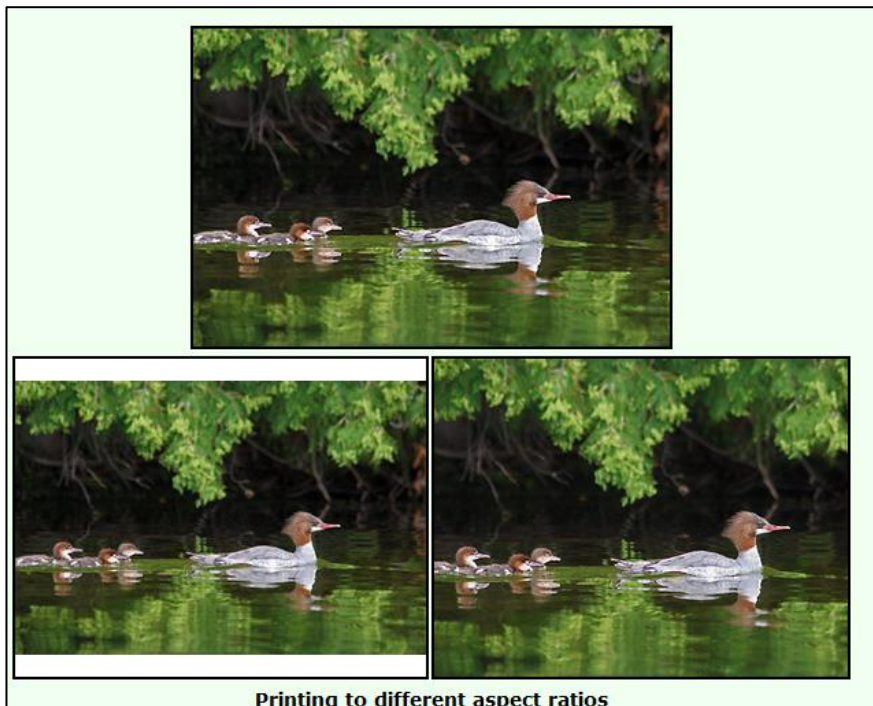


# Aspect Ratio

## What is Aspect Ratio

The aspect ratio of a photo is the ratio of the width of a photo compared to the height of the photo. For instance, a square photo would have a 1:1 aspect ratio (width is the same as the height). Conventional 35mm film has a 1.5:1 aspect ratio (or 3:2 as expressed in whole number terms). Many "point & shoot" digital cameras produce photos with a 1.33:1 (4:3) aspect ratio while most digital SLR cameras generally use the 35mm 3:2 aspect ratio. Some cameras allow you to choose the aspect ratio of the photos it takes. You can determine the aspect ratio of your digital images by looking at the pixel dimensions. A photo with dimensions of 2048 x 1536 pixels would have an aspect ratio of 1.33:1 or 4:3 (length divided by width). A photo with dimensions of 3504 x 2336 pixels has an aspect ratio of 1.5:1 or 3:2.

The problem that you run into is with printing is the aspect ratio of the printing paper doesn't always match the aspect ratio of the photo. Common photo paper sizes in North America include 6" x 4" (3:2 aspect ratio), 7" x 5" (1.4:1), 10" x 8" (1.25:1) and 11" x 8.5" (1.3:1). You'll note that all these paper sizes have different aspect ratios and only one matches a common digital photo size aspect ratio (3:2 or 4 by 6). To print your photos to a paper size that has a different aspect ratio, you'll either end up bordering the photo to match the aspect ratio of the paper, or cropping the photo.



The top photo is a 3:2 aspect ratio photo from the camera. The bottom two photos show the choices that can be made when printing to 8.5" x 11" paper, which has approximately a 1.3:1 aspect ratio. The lower left photo has whitespace added to change the aspect ratio from 1.5:1 to 1.29:1. This allows the photo to be printed full frame with no cropping. The second photo has been cropped to a 1.3:1 ratio, the same ratio as the paper, so that it can completely fill the paper. With cropping, some of the photo had to be removed to make it fit full size on the paper.

The options mentioned above are as follows:

- Fit to page – this results in the bands you see above, 2<sup>nd</sup> photo
- Crop to fit – this results in no bands but some of the photo is cropped away as in the 3<sup>rd</sup> photo

One way to have the best of both worlds is to crop the photo with an application to the aspect ratio you desire in the final print. This way you can determine which portion of the image is cropped away.

You can read more on this topic [here](#).

The aspect ratio of an original photo affects several things:

1. How it looks on an iPad, iPhone or PC screen
2. How much cropping is required to fit to a particular size such as 5 by 7

Here are the aspect ratios of various cameras:

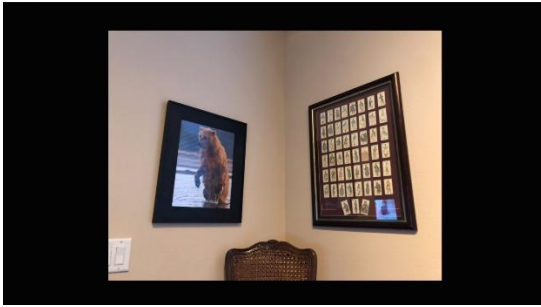
Device	Digital Cameras	iPhones	iPads
Aspect Ratio	3:2, 4:3, 16:9	4:3, 1:1	4:3, 1:1

Here are the aspect ratios of various device screens:

Device	PC screen	Most iPhones	iPhone X	Most iPads
Aspect Ratio	16:9	16:9	19.5:9	4:3

### What does this mean?

Here's one example. Below are two photos, the top one was shot with the iPhone native camera and has an aspect ratio of 4:3. Notice that it doesn't fill the iPhone screen. The second one was shot with a 16:9 ratio with a 3<sup>rd</sup> party camera app named Camera+. Notice how it fills the iPhone screen.



Another challenge is to have the correct size photo to use for your device wallpaper, especially if you don't want it cropped incorrectly. Fortunately, you can choose the portion of the photo you want displayed when selecting wallpaper. Also, there is an app that can crop a photo to fit your device screen called FitWallp that's free. See more info [here](#).

We will discuss cropping in class and use a free app called Snapseed. It allows you to change the aspect ratio of a photos to 3:2, 4:3, 5:4, 7:5 and 16:9. It also allows you to flip any of the sizes such as from 4:3 to 3:4, for example. It also allows you to determine which portion of the photos to discard. This app has no crop to fit option, so it always discards some of the photo. However, an app called Image Size has this feature and is free unless you want to remove ads for a cost of \$2.99. You can see the app [here](#).

Here are two examples using the FitWallp app. The one on the left shows the whole photo but with bands on the side. The one on the right shows the whole photo but with some of it cropped away.

