

Lesson 2: Understanding Technical Terms

Understanding Megapixels, File Size, and Resolution:

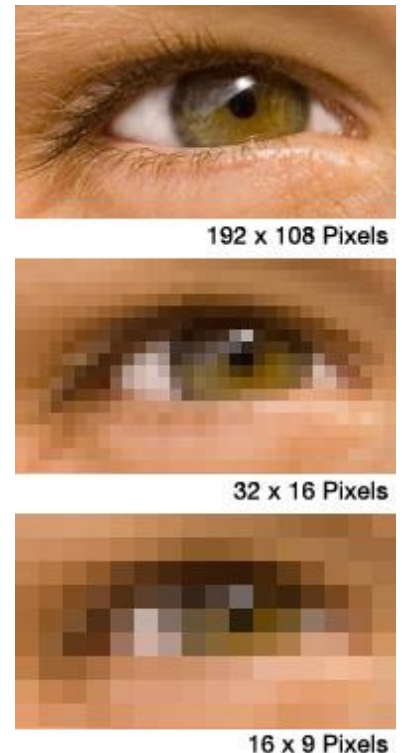
Digital images are made up of **pixels**: small squares of solid color. When you use pixlr or Photoshop or another program to zoom in, you can see the pixels and even count them. This is one way that images are measured – number of pixels wide by number of pixels tall (like how you calculate area in math class).



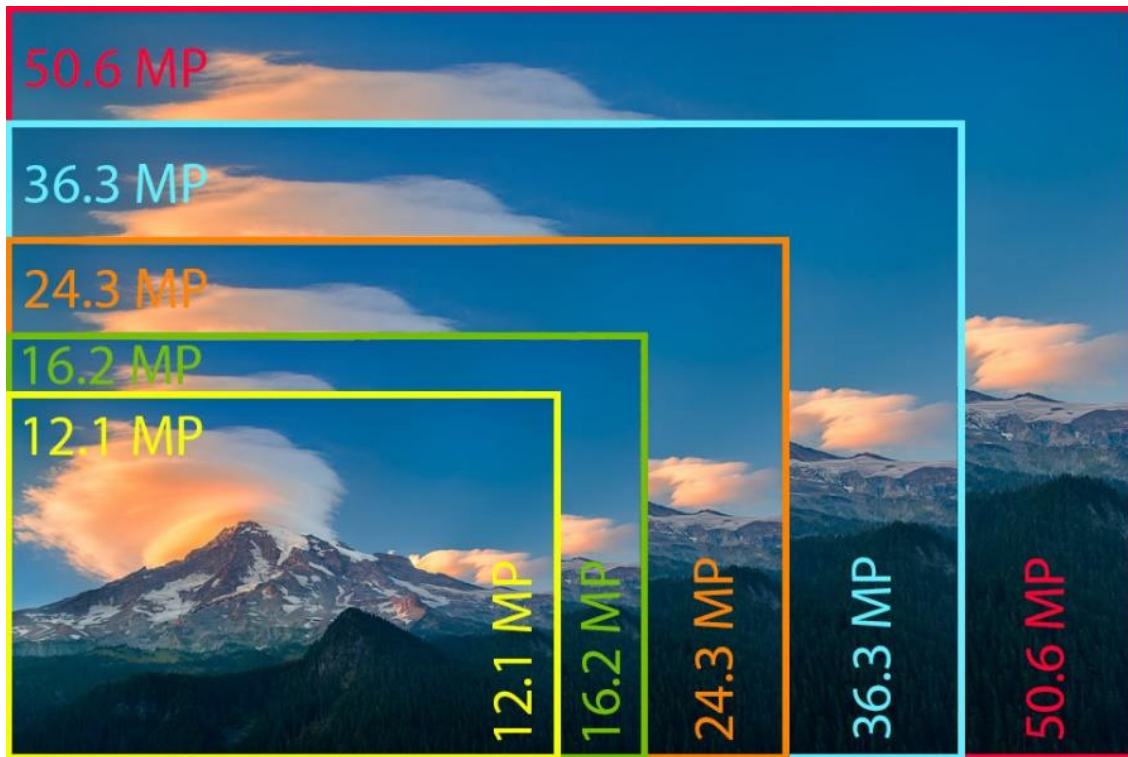
Generally speaking, you don't want to be able to SEE the pixels in your image. If you use a low quality camera or crop in too much, you may see them. That is POOR quality!

What's a MEGAPIXEL?:

A *megapixel* is one million pixels. The **more** pixels you have, the **better the quality** and bigger you can print your image without being able to see the pixels. Images will appear smoother and clearer.



The tradeoff is that the more pixels you have, the bigger the file which means it takes up more space on your phone/card/computer.



Cameras are labeled with their megapixel ability: the more megapixels, the higher the quality, more you can crop, and bigger you can print the images.

PIXEL TO PRINT CONVERSION CHART					
3 x 5 INCHES	900 x 1500 PIXELS	4 x 6 INCHES	1200 x 1800 PIXELS	5 x 7 INCHES	1500 x 2100 PIXELS
8 x 8 INCHES	2400 x 2400 PIXELS	8 x 10 INCHES	2400 x 3000 PIXELS	8.5 x 11 INCHES	2550 x 3300 PIXELS
9 x 16 INCHES	2700 x 4800 PIXELS	11 x 14 INCHES	3300 x 4200 PIXELS	11 x 16 INCHES	3300 x 4800 PIXELS
					

Many cameras will allow you to choose the quality of the images you’re taking. (I always shoot in RAW. It records the most information and allows more control in editing. For our purposes at school, we should be shooting at high or medium quality. We don’t have access to the right software for editing RAW files.)

Guide to Image-Recording Quality Settings (

Image Quality			Pixels Recorded (megapixels)	File Size (MB)	
 L	High quality	JPEG	24M	7.5	
 L				3.7	
 M	11M		3.9		
 M			1.9		
 S1	5.9M		2.4		
 S1			1.3		
S2			2.5M	1.3	
S3			0.3M	0.3	
RAW +  L			High quality	24M	30.3+7.5
RAW					30.3

How many pixels is “good”?

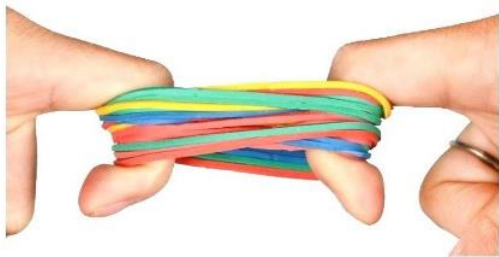
On a computer, 72 pixels per inch (ppi) looks smooth, but if you tried to print a 72 ppi photo, it would look jagged and rough. You need *at least* 150 ppi to get a smooth looking print on an inkjet printer or 300 ppi for professional level images.

Megapixels	at 300 PPI:
2	5.8" x 3.8"
3	7.1" x 4.7"
4	8.2" x 5.4"
5	9.1" x 6.1"
6	10.0" x 6.7"
8	11.5" x 7.7"
12	14.1" x 9.4"
16	16.3" x 10.9"
22	19.1" x 12.8"

According to [Digital Photography School](#):

****NOTE: Do not subscribe to the website above or provide personal information. Just scroll down to view the article.**

“The final size of your image depends on the resolution that you choose. If an image is 4500 x 3000 pixels it means that it will print at 15 x 10 inches if you set the resolution to 300 dpi, but it will be 62.5 x 41.6 inches at 72 dpi. While the size of your print does change, you are not resizing your photo (image file), you are just reorganizing the existing pixels.”



Imagine a rubber band, you can stretch it but you’re not changing the band, you’re not adding or cutting any of the rubber. You’re just taking what’s there and stretching it to be bigger.

With our powerful phones and computers, today, and relatively unlimited storage ability, pick the highest quality available to you – that way you are ensured of quality.

Ok, but what file type should I use?

When you save an image, the computer will compress it down using complicated math algorithms to reduce the file size. The trade-off here is quality. The more it is compressed, the more pixelated or “noisy” the image will appear.



- **JPG** (the most common file type) compresses files down to a manageable size while retaining decent quality.
- **TIFF** format is used for high-end commercial printing – like posters, billboards, or brochures
- **GIF** and **PNG** formats are used for graphics and transparent background (not to mention funny little videoclips)
- **RAW** is a high-quality format that requires conversion from raw data to something that can be seen and requires special software

Practice Lesson 2:

Open a photo that you already have in Google Photos (see Lesson 1, if you haven't set up your Google Photos yet).

Use the info button to see the file details of the image.  Record the information on the assignment slide called **Practice Lesson 2**.