

What are the best settings for e-mailing or printing digital pictures?

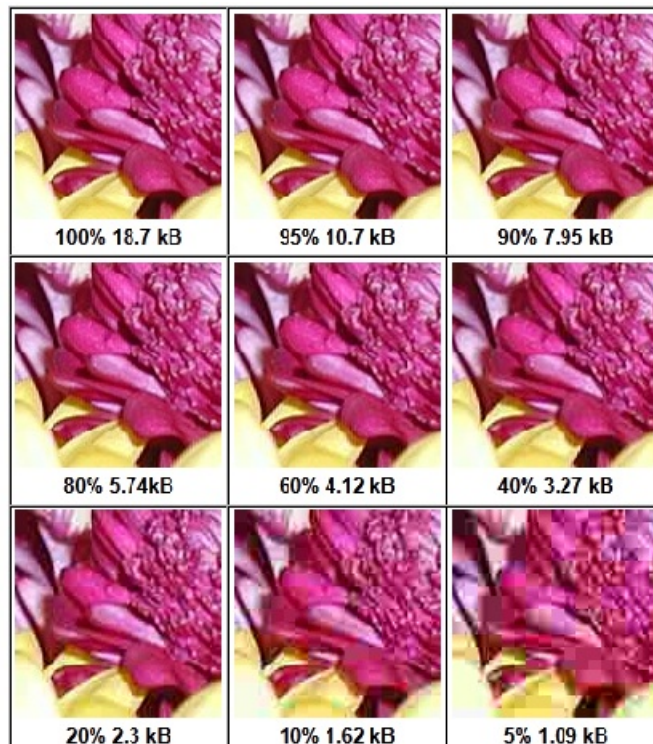
In general, if you are e-mailing the pictures to friends who will view them on a computer screen, you will want to send them pictures in the jpeg format at 640 x 480 pixels. If you are printing the pictures, you need about 150 pixels per inch of print size. So you would not want to print your 640 x 480 images at a size bigger than 4 x 3 inches.

Cameras can be quite complicated and use unintuitive jargon. Your camera probably has several different picture quality and picture size settings. For example, we'll go through all of the quality settings of one of the cameras we use at How Stuff Works. We took the same picture in all of the different modes and here are the results.

Setting Name	Format	Quality Level	Picture Size (pixels)	File Size
TIFF	TIFF	No Compression	2048 x 1536	9,231 kB
SHQ	jpeg	97%	2048 x 1536	1,391 kB
HQ	jpeg	91%	2048 x 1536	682 kB
SQ1	jpeg	87%	1280 x 960	249 kB
SQ2	jpeg	73%	640 x 480	62 kB

Most cameras store the images in jpeg format. This is a **compressed format** that reduces the file size of the images. Some cameras also have an option to store the pictures in an uncompressed format (like TIFF).

Generally you will want to use the jpeg format because the uncompressed pictures will quickly eat up the storage space on your camera. There are different levels of compression for the jpeg format. Some cameras will have good, better, best setting. These settings can be equated to a quality level parameter of jpeg compression. If the quality level gets down into the 60 percent range, you might start to notice little squiggles and extra graininess. The graphic below shows the relative picture quality and file sizes for different jpeg quality levels.



Digital Picture Size

The picture size is measured in pixels, so you need to pay attention to how many pixels wide and high the pictures you take are. Generally, a computer screen is 800 to 1200 pixels wide, with 800 being the most common setting. If you are e-mailing someone a picture that they are going to look at on their screen, then there is no reason to send them a picture bigger than their screen. Many cameras take pictures at 640 x 480 pixels, which is a good size for viewing on a screen. For comparison, the largest photos we use at How Stuff Works are about 400 x 300 pixels.

For printing, the general rule is that you want 150 to 200 pixels per inch of print size. On this page, Kodak recommends the following as minimum resolutions for these different print sizes.

Print Size	Megapixels	Image Resolution
Wallet	0.3	640 x 480 pixels
4 x 5 inches	0.4	768 x 512 pixels
5 x 7 inches	0.8	1152 x 768 pixels
8 x 10 inches	1.6	1536 x 1024 pixels

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SQ2 is 73% compression, 640 x 480 pixels, 62 kb file size (.06 GB)

On our camera, the SQ2 pictures are perfect for e-mailing.

The **SQ1** pictures are good for printing at 5 x 7 inches, which is nice because you can get two pictures onto a single sheet of 8.5 x 11 paper.

And the HQ, SHQ and TIFF settings all make nice full-page prints.

But you can see that the file size of the biggest images quickly gets too big to e-mail.

Canon **PowerShot A620** digital camera, 7.1 megapixels, captures enough detail for photo-quality 15 x 20-inch prints

A Panasonic Casio **Z55** is 5 to 7 megapixel



Megapixels vs. Maximum Print Size Chart

Megapixels	Pixel Resolution*	Print Size @ 300ppi	Print size @ 200ppi	Print size @ 150ppi**
3	2048 x 1536	6.82" x 5.12"	10.24" x 7.68"	13.65" x 10.24"
4	2464 x 1632	8.21" x 5.44"	12.32" x 8.16"	16.42" x 10.88"
6	3008 x 2000	10.02" x 6.67"	15.04" x 10.00"	20.05" x 13.34"
8	3264 x 2448	10.88" x 8.16"	16.32" x 12.24"	21.76" x 16.32"
10	3872 x 2592	12.91" x 8.64"	19.36" x 12.96"	25.81" x 17.28"
12	4290 x 2800	14.30" x 9.34"	21.45" x 14.00"	28.60" x 18.67"
16	4920 x 3264	16.40" x 10.88"	24.60" x 16.32"	32.80" x 21.76"
35mm film, scanned	5380 x 3620	17.93" x 12.06"	26.90" x 18.10"	35.87" x 24.13"