Digital Camera Resolution

The following chart can be used as a guide to help you decide what resolution camera you should purchase.

### Digital Camera Resolution Chart

<table>
<thead>
<tr>
<th>Capture Resolution</th>
<th>Video Display*</th>
<th>Print Size***</th>
<th>2x3&quot;</th>
<th>4x5&quot;/4x6&quot;</th>
<th>5x7&quot;</th>
<th>8x10&quot;</th>
<th>11x14&quot;</th>
<th>16x20&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>320x240</td>
<td>Acceptable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>640x480 - 0.3 Megapixel</td>
<td>Good</td>
<td>Excellent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>800x600</td>
<td>Excellent</td>
<td>Photo Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1024x768</td>
<td>Excellent</td>
<td>Photo Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1280x960 - 1 Megapixel</td>
<td>Excellent</td>
<td>Photo Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1536x1180</td>
<td>Excellent**</td>
<td>Photo Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600x1200 - 2 Megapixel</td>
<td>Excellent**</td>
<td>Photo Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2048x1536 - 3 Megapixel</td>
<td>Excellent**</td>
<td>Photo Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2240x1680 - 4 Megapixel</td>
<td>Excellent**</td>
<td>Photo Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2560x1920 - 5 Megapixel</td>
<td>Excellent**</td>
<td>Photo Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3032x2008 - 6 Megapixel</td>
<td>Excellent**</td>
<td>Photo Quality</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### Photo Quality

- **Poor**: Noticeably Grainy (pixelated)
- **Acceptable**: Obviously not a real photo, but some details are visible
- **Good**: Can tell it is not a photo but most details are discernable
- **Very Good**: Can tell it is not a photo at normal distance, but good enough for many uses
- **Excellent**: Difficult to tell from real photo at normal viewing distance
- **Photo Quality**: On a photo-quality printer, the human eye should not be able to tell the difference at a normal viewing distance

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* Either television or computer display (e.g. Web Page)
** Will produce an excessively large file size that would be inappropriate for web applications
*** Using a typical Photo Quality Desktop printer

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As much fun as it is to display photos on a website or send pictures via e-mail, photo prints remain the most popular way to share images. And the benefits of home printing are numerous. With a digital darkroom at your command, you can forego the waiting and produce prints immediately. Not to mention that printing your own photos is a real blast! Read on for surefire techniques for getting the best prints from your photo files.

**start with a good print**

You can't blame your printer when your source image is not capable of photo-realistic results. An image that merely looks good onscreen is not enough. Here's what to look for in a good print:

- Use a photo with a resolution of at least 240 dpi (dots per inch). Starting with anything less may give photos a pixilated look. As always, the higher the resolution, the finer the image quality.

- Save the image in the right format. Even if your image has high resolution, you'll still need to save it in the correct format - TIFF or JPEG, with low resolution. Generally speaking, more compression equals less quality. File formats that use compression techniques are okay only if the amount of compression used is not too great.

- Clear up and crop your image whenever necessary. Use a good image-editing program (e.g., PhotoShop or PaintShop Pro) to get rid of annoying dust marks and specks on your photos. (The printer will pick them up even if they're very small.) You can also use the sharpening filter in your image-processing program to enhance the edges in your print.

**use a good printer**

With a wide variety of options on the market, choosing a printer is tough. Here you'll find basic information on what to look for, followed by tips on maximizing your printing power for the best possible results.

- What dpi do I look for? You'll want a printer with at least four colors. And you'll want at least 600-dpi resolution for consumer-level photo output.

- Beyond dpi. Dpi isn't everything. HP’s enhanced Color-Layering Technology (PhotoREt I-III) takes the process one step further. It provides a wide range of smoother, more realistic colors for true-to-life images. The key is in the layering of ink drops, which together create a total image, resulting in as many as 17 levels of intensity per primary color.
Do I need a photo printer? You don't have to have a "photo" printer to achieve photo-quality prints. You can buy a good inkjet printer that, when using specially coated paper, delivers quality that looks almost as good as a photo finisher. If you need a general printer for both photo and business use, this may be the way to go.

But if your business relies on superior photos, or you want to devote a printer solely to photographic purposes, check out what photo printers offer. Often they have special features (like photo paper trays) and offer higher print resolution. Another useful feature to be on the lookout for is optical media sensing - which means no longer wasting expensive paper when you forget to change print settings.

**use the right paper**

Once you have a quality image that you want to print, the next step is to choose the right paper. Different paper produces different results in terms of color reproduction because ink reacts differently with different paper types. You'll get the best results if you use paper specifically designed for your printer. (Be sure to test a variety of paper types before buying large quantities.)

Once you've found photo paper that works well for you, experiment with specialty papers like canvas, watercolor, and metallic. Try a floral shot on watercolor paper, for example. Or for a fine-art print, consider a rarer surface such as canvas paper.

Here's what to look for in photo paper:

- **Whiteness.** For photo or picture printing, keep in mind that whiter papers produce sharper, more vibrant colors. Ink is translucent. Light passes through it and bounces off the paper, then passes back through the ink. The paper color, therefore, affects the color you see when you print.

- **Weight.** We're talking more about thickness than actual weight here. Some projects - like calendars - require a heavier paper stock. But if it's too thick, it could jam up your printer. Some papers are so thin that if you tried printing on both sides, the ink comes through. Again, you'll want to experiment here and find what works best.

- **Surface.** For printouts with crisp lines and intense, high-quality colors, the surface of the paper is key. Glossy paper produces vibrant color but is susceptible to fingerprints. So matte paper might be a better choice for prints that will be handled often. Be careful with extremely smooth, shiny, or coated papers not specifically designed for your printer. They can cause jams and even repel ink.

**use your printer correctly**

Driver settings. Use the most current version of the printer driver available for your printer. Then be sure to set your preferences to the highest print quality. Try all the options the printer driver offers you - sometimes you can find
variables like advanced color settings that will improve your prints.

Resolution setting. Printing at an output resolution of 240 to 300 dpi is a safe bet for top-quality photos.

Paper setting. Make sure you're using the right setting for your chosen paper: e.g., "Photo Paper." Generally, the paper settings control the amount of ink that is put on the paper. "Plain Paper" setting uses the most ink, for example, while the "Glossy Film" and "Photo Paper" settings use the least. When you find a setting that works for a particular paper type, save it and give it a name you can remember.

Keep it clean. Run the cleaner function in your printer every now and then to get maximal efficiency from your printer.

let's play: great photo projects
Now you're ready for some heavy printing action. Put your newly acquired wisdom to good use with these fun photo projects.

Photo Collage and Keepsake Book

Photo Family Tree

what's next
Next, we'll share some photography techniques from the pros in Pixel This 6: Capturing Close-Ups. And we're not talking basic stuff here either - we covered that earlier in the series. This time, we'll turn it up a notch with advanced composition ideas like marco photography. Once you read this you'll be able to apply right away and get in close to for a whole new perspective!
how to select paper

It's easy not to think about paper just borrow what's in the copier machine, right? But if you've seen the difference that a quality paper makes—especially one designed specifically for your inkjet or laser printer—you also know it's hard to go back to copier paper for anything but the most ordinary of documents. Paper designed for your printer looks and performs better every time.

Using special printer paper will not only give you better results, it will also be less costly: You'll have fewer paper jams and your output will look great every time. But there's more to plain white paper than meets the eye. Here are the basics of using and selecting paper for general use and printing photos.

a crash course in paper basics

First take into account what you'll be printing. Black-and-white documents are quite different from full-color photos. Some papers are multipurpose and, therefore, good for both; but if you want crisp, vibrant photos that will last a long time, you should use paper that's designed just for photos.

If you're looking for good general-use paper, think about the following:

• **Weight.** Paperweight ranges from lightweight newsprint to very heavy cardboard. Most quality business paper is 20- to 24-pound (lb) bond, with greeting card papers at the heavier end of the scale, usually in the range of 60- to 65-lb cardstocks. Metric equivalents are expressed in grams per square meter, abbreviated as g/m².

• **Thickness.** The thickness of a paper affects its handling and is most applicable to photo papers. Generally, thicker media will be stiffer and will resist creases and tears. Thickness is most often expressed as a unit of measure called a "mil."

• **Brightness.** A higher brightness value means that more light is reflected from the surface of the paper, providing crisper text with better contrast and a brighter background for color and images. HP's brightest papers include Premium for inkjet printing and Premium Choice for laser printing.

• **Opacity.** Opacity describes how well the paper blocks the passage of light through it. Highly opaque media prevent print from showing through to the other side and are considered good for printing on both sides—e.g., for brochures, newsletters,
• Finish. Finishes for laser and inkjet papers are becoming increasingly sophisticated, with numerous choices for a variety of applications. They range from matte to glossy, with lessening degrees of glossiness, sometimes described as semi-gloss, soft-gloss or satin-gloss. Many people prefer the mirror-like finish of high-gloss media for color photographs, and smooth matte finishes for black-and-white photographs and business documents. (Be careful with extremely smooth, shiny or coated papers that aren't specifically designed for your printer. They can cause jams and even repel ink.)

Here's what to look for in paper for printing photos:

• **Whiteness.** For photo or picture printing, keep in mind that whiter papers produce sharper, more vibrant colors. Ink is translucent. Light passes through it and bounces off the paper, then passes back through the ink. The paper color, therefore, affects the color you see when you print.

• **Thickness.** Some photo projects-like calendars-require a heavier paper stock. But if it's too thick, it could jam up your printer.

• **Surface.** For printouts with crisp lines and intense, high-quality colors, the surface of the paper is key. Glossy paper produces vibrant color but is susceptible to fingerprints. So matte paper might be a better choice for prints that will be handled often.

Your best bet is to buy a paper sampler with various weights and finishes. That way you can see for yourself what kind of results you get.