Choosing a Digital Camera

There are many digital Cameras available now that allow you to take pictures and put them into the computer without any development. Digital Cameras store pictures digitally in the camera instead of using a film. Every generation of cameras brings better results in the quality of digital pictures and most experts now believe most are as good as film.

Reproducing Pictures.
The pictures taken with a Digital camera can be stored and viewed on your computer. These pictures have a very good quality (that is they look good on a screen), can be copied very easily, can be shared, can be emailed (as an attachment) and will last forever. Unfortunately printing these pictures on normal paper with a coloured printer does not produce a good picture. You could invest in a high quality printer that uses high quality ink and paper or most “picture” people like Kodak, will take your picture files, either by disk, CD or even email and reproduce them for you. Print stations are available in most departments stores, Camera shops and some Chemists. Print stations allow you to insert your medium (CD, Flash disk or Flash Card), choose the pictures you want and print them on good Quality paper.

Features.
Listed below is a checklist of the main features you need to consider when purchasing a new camera.
The following pages describe these features in more depth.

- Type  Point and Shoot ……   SLR ……
- Brand ……………………………………………………..
- Cost ……………………………………………………..
- Pixel Size ……………
- Zoom size ……………
- Colour LCD panel ………
- Battery Type …………………………………………
- Storage and/or portable storage ………………………

As well as above, most cameras should now have as standard;
- Auto focus,
- Built in and auto flash,
- Low light capability
- Digital Video,
- Multiple scene modes including, Sport, Landscape and Closeup (old Macro).
- Previewing and Deleting.
- USB capabilities.
- Self Timer
- Software (for the computer)
Camera Types

Digital Cameras generally fall into 2 categories, “Point and Shoot” and SLR

**Point and shoot** cameras are by far the most popular because of their ease of use, small size and low cost. Generally everything is automatic but some allow the user to change settings.

**SLR** cameras (Single Lens Reflex, where the user actually looks through the lens to see the image to be taken) are the more “professional” cameras and give better quality photos but at a price. SLRs give the user more choice in the settings like light and shutter speed but they are bigger, heavier, and cost more.

Brand and Cost

Brand and Cost (and value for money) are always a personal choice. The best advice is to …
- Decide what you want to use your camera for and what you expect from it.
- Then determine what features you need (and maybe what you could have).
- Research the cameras – the Web is a great place for this and visiting shops.
- Decide on the camera and search for the best deal.

Sensor resolution

When you take a picture with a digital camera, the picture is first captured by a sensor which digitises the image and then sends it to the storage card. The Sensor size determines the resolution and file size. The quality of this sensor is determined by the camera manufacturers.

**Resolution - Pixel size**
The recommended pixel size (that is the number of pixels the camera will put into a photo) should be no less than 3 megapixels (meg). Most good cameras now have between 4 and 6 megapixels some are even higher, between 7 and 14 meg. Just remember, the more the Megapixels the better the quality (in theory) but the bigger the photo and the bigger the file size. Some Cameras let you vary the amount you want to use.

**Lens**
The lens plays a huge part of getting good quality pictures. Cheaper cameras tend to have manufactured glass lenses. The more expensive cameras and SLRs have professionally ground lenses. Point and shoot cameras have fixed lenses as a rule with built in Zoom but SLRs typically have detachable lenses.
**Zoom.**

There are 2 types of Zoom, optical and digital. 

**Optical** is how it appears through the lens using a variable lens. (that is the lens moves in and out) 

**Digital** is when the software inside the camera adjusts the size of the image similar to a “paint” program.

Optical zoom gets the best quality because Digital uses Resampling (algorithms interpolate the picture to retrieve missing data when reconstructing the image). Digital Cameras use a combination of both. For example a camera advertised with a “10x zoom”, could be “3x optical” and “3.3x digital”. Remember the higher the optical the better.

On the film camera, Zoom was measured by the focal length of the lens e.g. 35-120mm.

In digital cameras it is measured by multiplication factor 3x (3 times the size). Detachable lenses are seen with both measurements.

Large lenses on digital cameras can be affected by the slightest movement so some SLRs have compensative devices built in.

**Colour LCD panel**

Digital cameras have a LCD Panel to view your image before taking a shot. You can still use the viewfinder. The other advantage of a LCD Panel is that you can use it to review and delete pictures to free up disk space. Generally, the larger the LCD panel, the easier it is on your eyes. However, the larger LCD panels use more battery. For more flexibility in shots, some makes also feature monitors that swivel.

A typical LCD panel size should be about 4.5cm (1.7 inches) and can be as large as 7.6cm (3 inches)

**Battery**

Most cameras now run on AA sized batteries. The advantage being that you can buy this size battery anywhere in an emergency. These are referred to as single use Batteries and include; Carbon Zinc, Alkaline, Lithium (not to be confused with Lithium Ion) and Nickel Alkaline.

**Rechargeable batteries.**

Most camera users prefer rechargeable batteries because they are reliable and cheap. (You can re-charge them about 1000 times). Rechargeable batteries come in different types such as Lithium Ion and Nickel Cadmium (NiCd) but the best type is Nickel-Metal Hydride (Ni-MH). Ni-MH batteries are environmentally friendly, store more power and do not suffer from “memory effects”. Ni-MH comes in different forms varying from 1000mAh to 2900mAh.

**Chargers** come in all shapes and sizes. Some chargers may only charge one type of battery e.g. Ni-Cads. Before you buy rechargeable batteries, check with your camera manufacturer or retailer.
Storage.

All cameras convert the image taken into picture files, such as .jpg and then store
the image. There are basically three types of storage.

Internal Memory.

Some cameras hold the images in the camera.
When you want to put them into the computer, you use a patch cable to connect
the cable to the computer and use the camera software to remove and process
the images.

Disk / CD

Some cameras use a mini CD (or in older cameras a 3 ½” floppy disk) to store the
pictures. When you want to put them into the computer, you simply put the
CD/disk into a normal drive and treat them like normal image files.
For this system you do not need any software or hardware but the cameras
themselves cannot be made very small.

Memory Cards.

Most modern cameras use portable “electronic cards” that plug into your camera.
There are a few main types of these cards;
- CompactFlash Type I & II,
- Microdrive,
- MultiMedia Cards,
- Secure Digital (SD card),
- Memory Stick,
- Memory Stick Pro,
- SmartMedia Card and
- XD Picture Card.

These cards come in sizes from;
- 16/32/64 these sizes are becoming increasing
  hard to buy now.
- 128/256meg and
- 1, 2 & 4 gig

Obviously the type and size will vary depending on
the type and sometimes even the model of camera. (Kodak for example use 3
different types)

Transferring Images.

When you want to transfer the pictures into the computer, you can use the
camera software to remove and process the images. This is done via a cable or in
some cases a cradle/dock

Alternately you can get a card reader. There are single
card readers (for specific cards) and multiple card
readers (usually called something like an “8 in 1” card
reader).
These devices plug into a USB port and the card/s plug into it.
Portable Storage
For portability there are portable Hard Drive devices around that specialise in reading a variety of cards and storing the pictures. You can then download it to a computer later on. (The X-drive Pro shown can read 8 card types)

How much memory do you need?
The standard memory card you get with a typical digital camera is usually too small for anything other than the lowest resolution photos. Because of the nature of taking pictures with digital cameras you want to take many photos and sort them out later. To avoid running out of memory and having to constantly download, you need to buy as much memory as you can afford. If you are going on holidays for example and don’t want to take a laptop, you could get a portable storage to download your photos.

This grid will give you an approximate number of photos per card using jpeg (high resolution) format:

<table>
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<tr>
<th>Camera size</th>
<th>16</th>
<th>32</th>
<th>64</th>
<th>128</th>
<th>256</th>
<th>512</th>
<th>1 gig</th>
<th>2 gig</th>
<th>4 gig</th>
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<td>90</td>
<td>180</td>
<td>360</td>
<td>720</td>
<td>1440</td>
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<td>116</td>
<td>232</td>
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