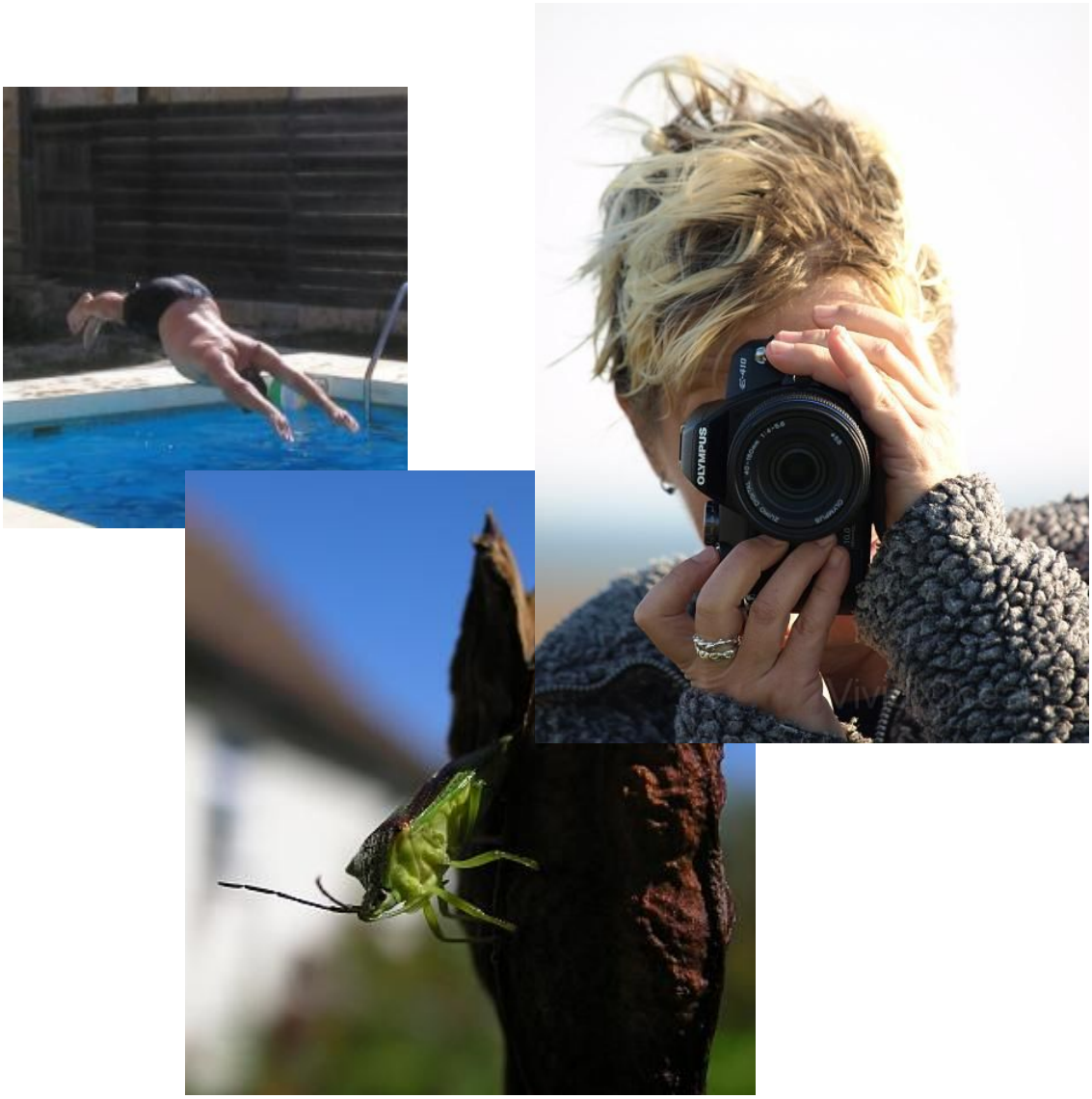
Making the most of your Digital Camera

Rob Spray

Demystifying digital photography and putting you in charge of your pictures



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1 Introduction

What's the big idea?

A new digital camera won't make you a great photographer, photography is an art and you may or may not be an artist, yet! But digital cameras do make it easier to get good results since you can see your results instantly and because it doesn't cost any more to take 1, 10 or even 100 pictures you can afford to keep going until you take the picture you want. Digital cameras have made new things possible too, especially new ways to share pictures, and this means you can get pictures to the people you want to see them.

My get out clause…

The information in this package is a summary for digital photography and not an in-depth computer literacy or photography course. I hope it's useful and appropriate, if you feel any area has been glossed over please just for more information.

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2 Why is it so slow?

Many people find compact digital cameras seem slow to take pictures. The bulk of the delay is due to the time the camera takes to focus, a little due to it measuring exposure and there is a pause before the next picture can be taken.

Pre Focus

Almost all cameras allow you to 'pre-focus'. When the shutter button is half pressed the camera will focus (slowly as usual) then it waits whilst the button is held there. When it is fully pressed the camera will take a picture almost instantly. This needs a bit of planning but it is quite possible to catch split second actions.

Exposure Lock

A side effect of half pressing the shutter to pre focus is to also fix the exposure to suit the view when the button was half pressed. This can be used to your advantage too. If your subject is in silhouette, pre-focus the camera on something else the same distance away (their feet?) and then frame them in the viewfinder and fully press the shutter.

If your camera allows manual exposure this can save a little time but this usually complicates snap shooting and is best practiced on something less important.

Manual Focus

If your camera allows manual focus you won't have to repeatedly pre-focus once you have set it and the shutter will be as fast for each shot

Shot-to-shot delay

The camera stores each picture on a memory card and doing this may delay taking the next picture, more megapixels take longer to save too! Cameras have a memory buffer which allows pictures to be taken quite rapidly but they will still slow once this is full.

Flash cycling

Another contributor to the delay between shots can be the time taken for the flash to recharge, this will get longer when the batteries start to run down. Cameras with more or bigger batteries will be faster.

Lighting

The camera's autofocus will be faster in strong light, like you it needs to see to focus. Some cameras are hopeless in the dark whilst others are just slow. Some have lights to help them focus in the dark – these have limited range.

3 Exposure

At the moment you take a picture, quite a lot of thought is given (by most cameras) to how the photo should be 'exposed'. Exposure systems can range from very simple to very complicated but all make mistakes. This is because the camera wants to make sure the picture is on average OK and doesn't know which parts are most important to you. It's a fine balance; under expose and everyone will be sunk into shadow, over expose and bright detail will be burnt out and lost.

On the right the people are underexposed and the sea and sky on the right are over exposed.

N.B. This could have been fixed by forcing the flash on – so the divers were lit more and the background could be exposed less.

The camera tries to keep the darkest parts of the picture black and the brightest parts white. However even the best camera will know less about the picture you want than you do – which is why sometimes people will be sinister silhouettes and at other times it may look as though a nuclear blast is in progress.

On The Spot

Straight out of the box your camera will be set to use a supposedly intelligent automatic exposure mode. That's great to start with but no matter how clever they tend to aim for an acceptable average rather than artistic perfection. You need to impose your choice and a digital camera is just the thing for that as you can see what has gone wrong straight away, not 3 weeks later. Luckily they can all be persuaded (or fooled) into doing something closer to what you want. The various picture modes your camera has affect the exposure (and focus) behaviour and can be useful, once you know what they are.

If you have grown bored with the default mode (called something as simple as 'auto' or as pretentious as 'iESP') the first creative step to take with your camera is to set it to 'spot metering'. Spot metering measures just a small area, usually in the centre, of the picture, to judge exposure. Combine a spot reading with the half button press and you're away! This means you can search around the scene with the 'spot' for the object you want to expose for (the car interior on the left – which has left the surroundings more exposed than the camera would have chosen) then half press the button and that exposure is locked and you can move back to the view you want. The full press of the button takes the picture with the exposure of your choice - not a manual control in sight!

This is, in fact, a much quicker way to compensate for most exposure problems than manual adjustment. You are in effect showing the camera what is important to you and asking it to expose for that part of the scene.

Warning: There are a couple of things to be aware of. The first is that the half press locks focus as well as exposure so make sure the object you choose to 'spot' is a similar distance away to the main part of the final scene. Second don't expect miracles. The reason that 'auto' exposure is the default is that the camera cannot cope with an infinite range from dark to light and has to compromise. If you point the camera into the sun the rest of the picture will be very, very dark - equally if you lock the exposure onto a deep shadow any part of the picture which is normally lit will appear very, very bright – like the car example on the previous page and the on the right where a spot has enabled the black camera and subject to be properly exposed but the bright sky cannot. It's best to try a few points for spot metering and see what works best. At worst you can use your new found powers to take several pictures correctly exposing the important points and then combine them later…

If you find spot metering too extreme for general use most cameras offer a 'centre weighted' mode which takes more notice of the centre of the scene whilst keeping overall exposure under control.

Exposure modes

 **'Intelligent', Matrix, iESP etc, etc**	Although some may simply call it 'Auto' there are any number of swanky titles for the default exposure mode. The camera evaluates the whole scene, perhaps using hints from a operating mode, then chooses a compromise exposure based on the content of the entire frame.
 **Centre weighted**	The whole of the scene is considered but the result is a compromise biased towards whatever is in the centre. The result is a less extreme version of spot metering.
 **Spot metering**	An area (as small as 2%) of the whole scene is chosen as the basis for the exposure used with no regard to the rest of the scene. This allows very precise selection of the object to be exposed but can result in the rest of the frame being severely under or over exposed.

4 Scene Modes

To bridge the gap between the Automatic and Manual control most cameras now have some predefined scene modes for particular purposes. This starts with a few useful sounding ones but some cameras now have 20-30 choices including some quite niche selections such as food and underwater settings. We'll just run through the more generally useful ones.

 **Sport**	This is a very useful mode, perhaps even worth using as an everyday default. It tries to maintain a fast shutter speed to capture action - which helps avoid problems with shake and blur in casual and hurried use. In theory this mode will reduce depth of field and increase the 'film speed' but once you're aware of those effects I'm sure you'll be ready to remedy them…
 **Portrait**	This sounds useful but is actually a creative choice rather than technical assistance. It will assume that the most obvious object in the centre of the scene is a person of whom you would like a portrait and will then aim to make them crisp whilst the background is intentionally blurred, for a pleasing effect. Some cameras have a **landscape portrait** mode where both the background and foreground should be sharp for those 'here's Doris at Niagara' shots. This is of questionable value as the basic modes will normally try to make the overall picture OK and it may be just plain impossible to get them both sharp.
 **Landscape**	Landscapes should be easy anyway but this may help slightly (probably not noticeably). Choosing this mode informs the camera that the major interest is distant and that the sky is at the top – to stop the land being underexposed. Try it out to see if it works for you, I've never noticed much improvement.
 **Night**	This one really confuses many people. Short of magic there is little a camera can do to suddenly take fantastic pictures at dusk or in deeper darkness. What this mode does is allow the flash to fire whilst keeping the shutter open long enough for the background scenery to expose properly. Usually this means a wasted picture as the shutter is open too long to be easily hand held. There should be warning that this mode works best with a tripod and needs your model to stand still and not walk off straight after the flash. For this to work you need to keep the camera still for the whole of what may be quite a long exposure and ask your subjects to pose until you give them permission to move. For most people sports mode would work better – less blur and brighter pictures – but no miracles. Another effective solution for a scene where the people are still or you don't mind them blurring is to turn off the flash and allow a long exposure. A simple way to keep the camera still for long exposures is to set the camera down somewhere level then set it on self timer. Once you press the button you have about 10 seconds to move in or out of the picture and because the camera is on something solid the exposure will not be blurred due to wobble.

Panorama

Can be engaged as a scene mode or a special function. It locks exposure during a sequence and provides an on screen guide to the overlap needed between pictures.

5 Focus

If you rely on auto focus it is as well to understand the process involved and how to help the camera understand what you think is the focal point of your picture.

In any picture there is a single plane of perfect, sharp focus which is set by the lens. Clearly there's more to it than that as often most of the picture and objects at a variety of distances are sharp. Whilst the focus is set for a single distance there is a range in front and behind which also appears sharp. This is called the 'depth of field'. It varies with distance, aperture and focal length. In short a small aperture (finer pin hole) and short focal length (wide angle) make for more depth of field. The depth of field expands as the point of focus moves away from the camera. Because small digital cameras have lenses which have very small focal lengths in real optical terms they have comparatively large depth of field in most situations.

Macro

In the not very distant past you would have needed extra lenses or adaptors to take pictures of small things. You might have found that your camera would have trouble taking pictures of things which were much less than a couple of feet away. Now every compact digital camera worth its salt can take good pictures of apple sized objects less than a foot away. Often much smaller things much closer.

The zoom lenses on even the tiniest digital cameras are amazing telescoping marvels and having all these little bits of glass under computer control means that most can have a 'Macro' button – which is usually marked with a tulip. Once this is pressed to engage Macro mode the camera can focus closer. It's not always clear just how close, the manual will say, usually 3-6 inches. SLRs tend not to be able to focus as close although they can be fitted with specialist macro lenses which offer amazing magnification, with very limited depth of field. Once you are this close a steady hand and lots of light are vital. If you don't have a steady hand then resting the camera on something solid or propping it up and using the timer will help eliminate shake - a tripod is the tool for this job!

Auto focus

Some cameras measure the distance to your subject but most simply look for a sharp detail and adjust focus until it's sharp. Cameras focus more quickly on objects with sharp, distinct detail – such as the eringium on the right. Cameras can only focus on what they can see so they will focus more slowly in the dark or if details are indistinct. Small objects can be difficult to pick out from the background.

Exposure Compensation

Although you may not fancy trying manual control this terminology is also used for the exposure compensation which even the simplest cameras offer. This allows you to under or over expose relative to the camera's choice i.e. you can brighten or darken the picture. This will be indicated by a positive or negative value in 'stops', to show that you have chosen to over expose/brighten or under expose/darken respectively.

Flash modes

Although it often seems to be doing its own thing the flash on the camera can work with you. There are usually at least three modes Auto, Forced on (fill in flash) and Forced off.

AUTO	In auto the camera will obviously turn it on when it's dark but often these days it will also fire if the object in the centre of the picture is dark (perhaps silhouetted) to try to 'fill in'
	Forcing the flash on is often an easy way to add a little 'zing' to a picture by lighting the close objects well – though this doesn't always look natural. Using on bright days can 'fill-in' faces darkened by shadows.
	Red eye reduction is an admirable aim but this setting tries to close down your victim's irises by blasting then with salvo of flashes before the picture is taken. It may reduce redeye but will leave the subject looking stunned. One word of advice – avoid!
	Forcing the flash off will give a longer exposure for darker scenes but collect light evenly from the whole view and allow movement to blur – which you might want for artistic reasons.

Often the key to using your flash effectively is to carefully balance natural and artificial light. This is easier said than done with the tiny flash units on compact cameras, often the most effective control is distance as they will run out of steam as you move away from your subject.

 Flash exposure compensation

Because the flash cannot usually be included in the exposure metering – as it doesn't fire all the time – there is often a separate control to adjust its power. Just like the overall exposure compensation control (which has a very similar icon) it works on a scale of 'stops'.

6 Preparation for a day out

Bags of fun

I've found that one of the most important camera accessories you can buy is a good bag. Having laboured carrying cameras in pockets and rucksacks the difference is quite striking and so now I recommend a good bag as the first thing to get – if nothing else it'll keep the camera in better condition than scraping around with change at the bottom of a handbag.

An ideal bag is as small as possible – so there's no reason not to take it. It is rainproof - so you can take it everywhere. It has a large pocket for the camera and nothing else and smaller pockets with compartments for a spare set of batteries and another memory card.

Tripod or wirepod

A small tripod can be handy to steady and level the shot when you want to be in the picture or it's too dark to hold the camera still. You can't always find a bench in exactly the right place. A wirepod is a small tripod with bendy metal legs – they start at 99p and can be just the thing for impromptu self portraits and group shots where you don't get left out!

Batteries

Of course you should have at least one spare battery. Some cameras have excellent battery life now, if you have yours freshly charged, but Murphy's law dictates that the one in the camera is one its last legs so a second is a no-brainer. Rechargeable batteries lose their charge over time, so if you haven't used them for a while they should be recharged before a trip.

Cards

Memory cards are now much cheaper than film ever was. On the basis that you shouldn't spoil a ship for a ha'peth of tar I always recommend that you carry plenty of picture space with you so that you don't encounter the nightmare scenario of having to wipe pictures you forgot to save after your last day out to shoot this weekend's once in a lifetime moment.

10 Laws of Photographic Annoyance

No matter how well you plan, something is always waiting to go wrong. See how many of these you can remember happening to you;

1. The background is always in focus
2. Pictures that don't matter turn out best
3. Batteries last until you need them
4. Animals (and children) wait patiently until you are ready – then leave
5. People blink as you press the shutter
6. Someone with a cheaper camera will take a better picture
7. Once you buy your camera the one you really wanted will go on sale
8. Once the opportunity has been missed you will get the advice you need
9. You will notice the thing that spoils the shot once you are home
10. Something is set wrong whenever you pick the camera up…

7 Portrait basics

So why don't your party photo's look like Hollywood publicity shots? Well let's look at the circumstances…

1) Models – rarely cooperative
2) No make up or hairdressing staff
3) Background – unpredictable
4) Lighting – unfavourable
5) Camera lens – unsuitable
6) Flash – point blank flat on

You can see why snaps don't turn into portraits. The example on the left has a number of problems, uneven light, extreme perspective (big nose) and the model is squinting into the sun.

Light fantastic?

People are really tricky to show in a good light, and light is the best place to start. For serious portrait photography you need control of the background and 2 or more light sources but you can improve vastly upon shooting people straight in the face from point blank range. If you cannot control the light you may have to compromise and control the situation – move around so that you have the sun behind you for simple shots. Shoot at the same height as the model's face not down on their head if they are a child or up their nose if they are tall.

Experiment with different positions, exposure settings, taking plenty of pictures and you may get the lighting right - the hard part is getting a flattering, non-gormless expression.

Some simple ideas

One way to attempt a pleasing film star glow is to take pictures outside with the sun high but behind the subject – to highlight their hair – then use the flash (by forcing it on) to light their face. If the flash or high sun is causing dark shadows under their chin turn the camera so that the flash is to one side or even under the lens – you can turn the picture later of course. An extra light source can be added by using a reflective disc to direct sunlight.

To control distortion and isolate the subject from their surroundings try to use a telephoto lens – zoom in. Remember what a wide angle lens will do to a face close up, and flatter your subject like the pros do by shooting at a distance but zoomed in. This will be less annoying, make the flash less harsh and also give you the chance to have their face sharp but the background blurred if you have them far enough from it.

After the shoot you can go to work doing the Hollywood clean up of teeth, eyes, wrinkles and spots, if you feel they deserve it.

8 Connecting your camera to a TV

Everyone's camera has a socket in the side which allows you to connect it to a TV. This is sometimes handy but the results are usually disappointing. The reason for this is historic and there's no simple fix. The connection used, usually a round yellow plug (called a phono, RCA or cinch plug) carries only old style TV signals and cannot transmit more than 0.5 Megapixels, which is halved anyway to stop it flickering on old TVs.

It will be the same whether it is a nice new flat screen or an old portable TV. This is no way to see the best your camera can do and no more than a last resort for viewing or showing pictures. To get better pictures you need to transfer your pictures on to something better. A DVD player is the best normal method and will exploit the full half Megapixel of the connection. That's why it's worth reading the section about slideshows again.

High definition

A few new cameras now sport HDMI connectors which can exploit super new high resolution flat screens – but won't work on old ones. An HDTV connection can potentially show up to 2 Megapixels so your pictures could look much better! Even though your new HD ready telly may not be able to show all of your pixels (most only have around 1 million) they will be sharp, colourful and flicker free.

Some of the new 'media centre' PC and entertainment systems can also show pictures in high definition, which is potentially the most convenient way to browse your full collection although setting up a shared picture library can be tricky.

Good TVs

LCD screens, whether the small flat ones used with PCs or large TVs, tend to show a more limited range of colour even than old TVs because of their fluorescent backlights. Some of the better ones now use LED backlighting which show a fuller spectrum of colour. They are very sharp and the smearing effect which LCD can suffer from is no problem for viewing stills.

A high resolution plasma screen is just about the most spectacular way to view pictures, paper is so last year. This is because they can display a wider range of colours than traditional televisions. Their colour gamut is around 20% greater than was available in the past and although most don't use standard ways to show it they certain look amazing. Older, cheap plasma screens were very low resolution (they were designed for American TV broadcasts) and should be avoided.

Flat screens will not show more detail unless they are fed by a camera, blu-ray player or PC via HD TV or computer interfaces.

9 Appendix - A short Digest of useful suppliers and information

Cameras

I write reviews for www.wexphotographic.com who have huge stock and are super fast.

www.ebay.co.uk has amazing offers but foreign sales can attract tax and risk. Buyer beware!

Camera Reviews

Can be comprehensive but read them with care, they may not want the same features as you.
www.imaging-resource.com - www.dpreview.com

Cheap memory cards etc

www.7dayshop.co.uk – very good for general supplies – memory cards, batteries and ink

Ideas

www.bestphotolessons.com Is one of several collections of tutorials on the web.

Price comparison sites

All have rather selective coverage, best to try them all
www.dealtime.co.uk or www.pricerunner.co.uk

Searching on www.google.co.uk or www.ebay.co.uk can often turn up better deals

Printing

www.boots.com and others have 'DIY' print systems in store and offer online printing

www.photobox.co.uk One is of the best online printers, they often have offers on large prints but www.snapmad.com (part of 7Dayshop) are consistently cheapest for posters

Software

picasa.google.com (N.B. No www.) A free program from the Google people which offers useful editing and some extras like webpage, screensaver and slideshow making

www.amazon.co.uk Are usually competitive for packages like Paint Shop Pro or Photoshop

www.irfanview.com A free program that will quickly view pictures, create slideshows and screensavers as well as resizing and converting files

jalbum.net (N.B. No www.) Jalbum is a very powerful free program for making web albums. It is much more flexible than web based gallery sites like Flickr but inevitably more complicated.