NEW

COMPLETE Photography MASTERCLASS

FROM THE MAKERS OF Digital Photographer

Everything you need to know about the art of image-making

148 PAGES OF EXPERT ADVICE

Digital Edition

FUTURE

FIRST EDITION

FROM BEGINNER TO PRO

COMPLETE
Photography
MASTERCLASS

Welcome!

Hello and welcome to the Complete Photography Masterclass: From Beginner to Pro! Photography is a huge topic, with many genres, styles, subjects and techniques. This can make it quite an intimidating art to master when you take your first steps. However, there's nothing quite like seeing your first pro-grade image on the back of a new camera, and we believe there is just as much joy to be found in the journey of learning to take amazing photos.

The bookazine you're holding contains everything you need to know to get started, from choosing a new camera to the moment you get it out of its box and start developing your skills. By the time you turn the last page you'll have mastered the basic exposure settings, got a grip on colour harmony, discovered how flash can take your shots to new heights and learned how to elevate your images in the digital darkroom.

For this Masterclass, we've taken a hands-on approach to training. Rather than explain photo science out of context you'll learn on the job, developing your knowledge through practical tutorials and guides covering all of the major photography topics. Often this is as simple as telling you which button to press, how to hold your camera or the best setting to choose from a menu. Every technique you discover can be applied to other photo opportunities ensuring you never miss a moment. More importantly, you'll have fun as you learn!

So let's dive in and start revealing the secret tricks and techniques the professionals use to get stunning images every time.


FUTURE

COMPLETE Photography MASTERCLASS

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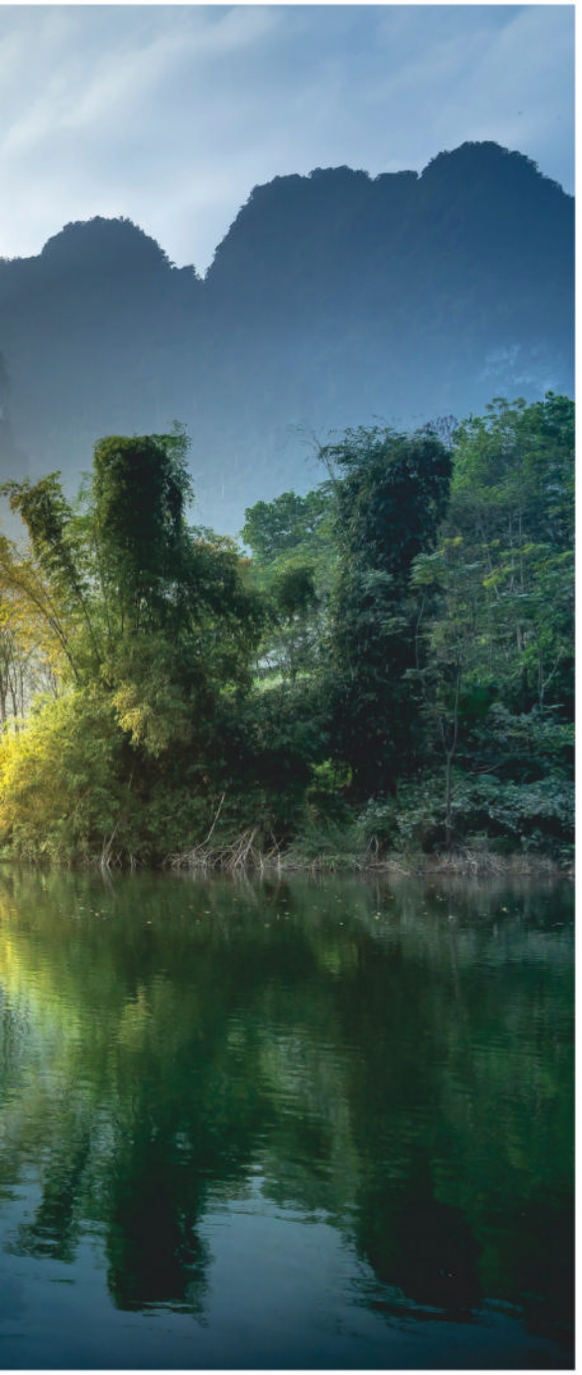
Part of the Digital Photographer bookazine series

Practical advice for enthusiasts and pros

CONTENTS

PART 1: GET STARTED



PART 2: SHARPEN YOUR SKILLS

PART 3: SHOOT LIKE THE PROS

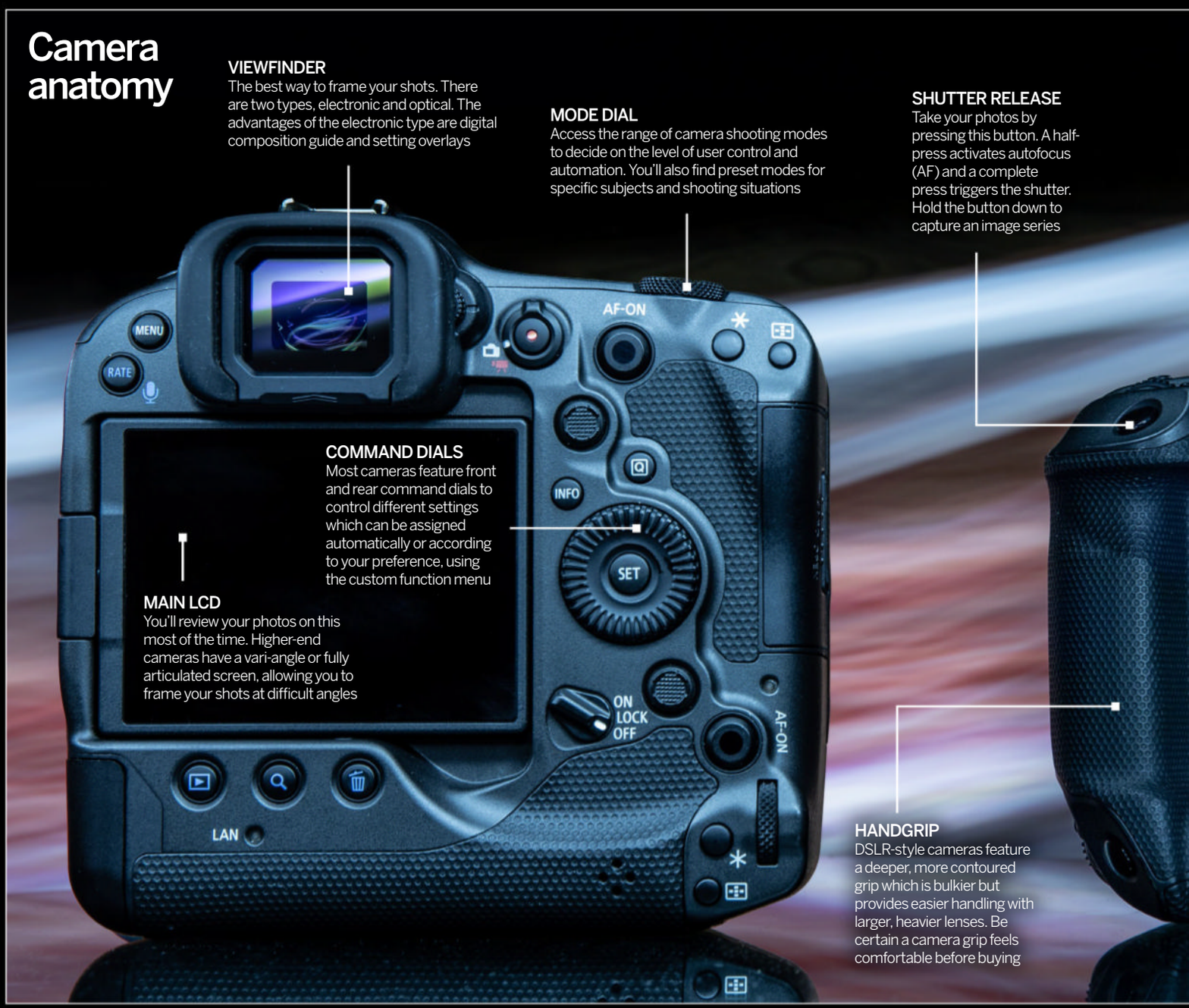
PRO PHOTO WORKSHOPS

PART 1:
GET STARTED

CHOOSE YOUR CAMERA

Pick the right camera for you with our easy guide to the main types & variants

Camera anatomy



VIEWFINDER
The best way to frame your shots. There are two types, electronic and optical. The advantages of the electronic type are digital composition guide and setting overlays

MODE DIAL
Access the range of camera shooting modes to decide on the level of user control and automation. You'll also find preset modes for specific subjects and shooting situations

SHUTTER RELEASE
Take your photos by pressing this button. A half-press activates autofocus (AF) and a complete press triggers the shutter. Hold the button down to capture an image series

COMMAND DIALS
Most cameras feature front and rear command dials to control different settings which can be assigned automatically or according to your preference, using the custom function menu

MAIN LCD
You'll review your photos on this most of the time. Higher-end cameras have a vari-angle or fully articulated screen, allowing you to frame your shots at difficult angles

HANDGRIP
DSLR-style cameras feature a deeper, more contoured grip which is bulkier but provides easier handling with larger, heavier lenses. Be certain a camera grip feels comfortable before buying

Picking out a camera is the most important decision a photographer can make. The model you choose will potentially be with you for many years and so it not only has to have the best features to fit your creative interests and style, but it also has to be comfortable for you to hold and operate. While most cameras around follow a similar design principle, there are subtle variations from brand to brand in how the controls are organised. When making your choice, you have to be sure you can access all of the buttons and that it's not too heavy for you to carry around for several hours!

There is a huge array of cameras available today, with many brands and models to choose from all aimed at slightly different users and with different specialisms. This makes actually narrowing down what you need a little tricky and perhaps even a bit scary. Luckily, you can't buy a bad camera these days – they will do a great job of capturing high-quality images – so all that remains is deciding which models will offer you the best value. Let us take a look at the main types on offer and get you started on your photographic journey!

Choose a camera type

DSLR

The choice of professionals for many years, a DSLR (Digital Single Lens Reflex) camera uses a mirror to reflect an optical image into the viewfinder, allowing the photographer to see a 'live' through-the-lens view.

- **Advantages:** deeper handgrip, balanced with large lenses
- **Disadvantages:** larger and heavier, reduced technical support today

Mirrorless

Having largely replaced DSLRs, mirrorless cameras feature an Electronic Viewfinder (EVF) and have no internal mirror, allowing them and their lens systems to be much smaller and lighter. Newer technology also enables extra-high burst rates and advanced autofocus.

- **Advantages:** lightweight, ultra-fast, continuous development
- **Disadvantages:** comparatively expensive, EVF not to everyone's tastes

Rangefinder

These are quite niche cameras that use a classic method of manual focussing, using a guide visible through the viewfinder. They are favoured by street photographers for their simplicity and discreet style.

- **Advantages:** small and inconspicuous, easy to use
- **Disadvantages:** often expensive, no autofocus, fewer features, not beginner-friendly

Understand sensor size

APS-C

Sometimes called crop-sensor cameras, APS-C bodies are common enthusiast models. They offer a great balance of quality and camera size, and magnify your lens focal length by around 1.5x, allowing greater reach for a lower cost.

Full-frame

Previously the reserve of the pros, full-frame sensors are the same size as a frame of 35mm film. The bigger sensor area enables larger pixels for superior low-light quality at high ISO settings and higher pixel resolutions, for bigger prints.

Micro FourThirds

M4/3 cameras have a much smaller sensor limiting the max pixel count. Most have no more than 20MP, but are often much smaller and lighter than their full-frame counterparts. They also double the lens focal length making them perfect for wildlife photography.

Medium Format

With an area larger than full-frame, medium format sensors allow huge resolutions of up to 100MP. The cameras are generally larger and heavier but mirrorless models are still relatively portable. These models are for advanced photographers and are prohibitively expensive for most beginners.

USER LEVEL

Pick the right camera for the features you need most

Entry-level camera

These cameras are best for beginners, providing most of the specs you need to get started. Look for a resolution of around 20 megapixels and 1080p video, an ISO range of 100-6400 and a burst rate of about 8 frames-per-second (fps).

■ **Price range:** £/$550-800 (body only)

Enthusiast-level camera

Ready to move up a step? An enthusiast or semi-pro camera may still have an APS-C sensor but will have up to 30 megapixels and a sensitivity range of 100-25,600. You'll also find 4K video, 10fps shooting and a stronger build quality

■ **Price range:** £/$1000-2200 (body only)

Pro-level camera

Ready to capture the ultimate image quality? A pro camera will be the best money can buy, featuring anywhere up to 60 megapixels, a full-frame sensor, 15-20fps, 8K video, dual card slots and an all-metal build. There may be too much here if you're a new shooter!

■ **Price range:** £/$3000-6000 (body only)

Pictured
Try before you buy
It is always advisible to visit a camera store to get hands-on with your prospective camera to see how it feels to use

Essential specifications

Resolution
The more pixels your camera has the bigger you can print your photos and the more you can crop your shots in software. Look for no less than 20 megapixels.

Sensitivity
Your ISO range impacts how your camera performs in low light. You'll need at least ISO 6400, but beware of massive 'expanded' settings which introduce too much image noise.

PASM modes
Each shooting mode offers different levels of control, from completely automatic (Auto) to fully manual (M). Program (P) is a good practise mode, while Aperture (A) and Shutter Priority (S/Tv) are advanced creative modes.

Burst mode
Capture many images in a sequence when shooting fast sports or wildlife. Higher frame rates make it easier to capture the key moments. Enthusiasts need about 10fps.

Intelligent AF
Recent cameras feature advanced subject recognition AF and subject tracking. Higher-end cameras have autofocus systems that can recognise faces and keep these core areas sharp between frames

Shutter type
Some cameras have a mechanical shutter and a virtual electronic shutter mode, the latter providing higher frame rates. Look for mechanical fps first and beware of distortions in electronic mode.

IBIS
In-body Image Stabilisation compensates for camera shake at slower shutter speeds, reducing blur in your photos. This makes low-light shooting easier without a tripod. You need at least 3-stops of reduction.

Flash system
If your camera has a built-in flash, check if it can work as an external flash commander, to trigger off-camera flashes when you want to get more experimental with lighting.

Useful accessories to fill your kitbag

Filters


A Neutral Density (ND) filter cuts light allowing longer exposures for creative effects, while ND graduated types help balance exposure across the sky and foreground. A circular polariser produces better colours.

Tripod


When the light fades you can't hand-hold your camera without creating blurry photos. A tripod allows you to use slower shutter speeds without sacrificing sharpness.

Tripod head


A ball head will allow you maximum flexibility of camera movement when mounted on a tripod, while a pan/tilt head is more precise and easier to use when shooting panoramas.

Monopod


You can't always use a tripod in busy or restricted places. This is where a monopod comes in, allowing you to support your camera on the move.

Speedlight


Sometimes called a flashgun, this external flash unit allows much more control of lighting direction than the built-in flash on your camera and is the choice of professional portrait and event photographers.

Battery grip


Double up your power with this accessory that attaches to the camera, reducing the chance of you running out of battery while adding a second shutter button for portrait shooting.

HOW TO MASTER MANUAL

Dan Mold explains how you can take your camera off auto mode and capture images that match your own vision

Some of the greatest features of modern digital cameras are the semi-automatic exposure modes, namely Aperture Priority (A or Av on a camera's mode dial) and Shutter Priority (S or Tv). These work effectively for most shooting situations, leaving you to take control of some of the exposure, while the camera calculates the rest of the settings to produce a well-exposed shot. These modes are ideal when starting out with photography, as they allow you to concentrate on elements such as focusing and composition. However, full Manual mode will always give you greater control over the final look of your images and enable you to be more creative. Aperture, shutter speed and ISO all have an impact on the shots you take, so by controlling them individually you can come up with images that truly match your intent.

Many photographers are daunted by Manual, which is such a shame: Manual is a powerful mode that you really should get to grips with (if you haven't already). It's almost essential for certain situations, such as high-contrast scenes or studio environments, and it will help you to leave nothing to chance with the images you're creating – after all, modern cameras are great, but they can't read your mind.

In this feature, we've put together some top tips covering situations where you should use Manual mode, plus how to get the best results by experimenting with fundamental exposure settings. We'll also offer some advice on how to change the look of your images with skills like focusing or adjusting the white balance. Read on to see how it's all done, and you'll be shooting like a pro in no time!

Take back control
Shooting towards the sun can create harsh lighting, so it's a great idea to use Manual mode to take full control of your camera settings, then lock the exposure off so you get consistent results

5 REASONS TO USE MANUAL MODE

Manual mode isn't right for every occasion, but it excels in situations that require more thought

Don't get us wrong, semi-automatic shooting modes definitely have their place in a photographer's shooting practice. They help you to shoot more simply, flexibly or quickly, and they're great for scenes where the light or subject is changing quickly. Conversely, Manual mode excels in situations where you need ultimate control, for example to deal with high-contrast lighting, flash, or to prioritise one parameter over another.

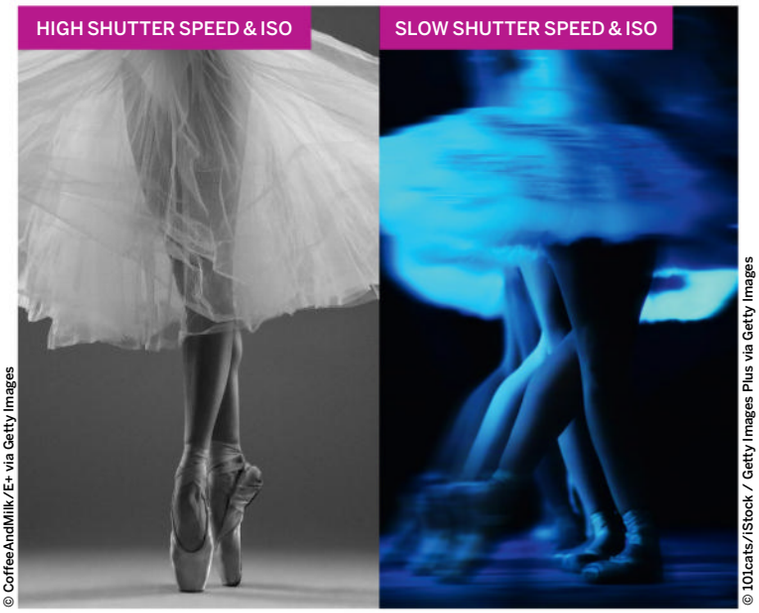
If you haven't used Manual before, then don't expect to get it right first time. It will take a while to get comfortable with extra settings, but if you practise (without worrying if shots go wrong) it will soon become instinctive.

TOP TIP

When using a flashgun or studio strobes, you'll also want to use Manual mode for the best results. Don't go above your maximum sync speed, usually around 1/200sec.

1 Learn how to read scenes better

Sticking your camera on an auto-exposure mode and relying on it to capture well-exposed images turns you into a lazy photographer, as it doesn't encourage you to learn (often through trial and error) when you need to prioritise one setting over another. Start using Manual mode, embrace the process of getting images wrong, and you'll quickly find out how to read different scenes, and what settings to use for the best results.



© CoffeeAndMilk/E+ via Getty Images

2 Choose settings for creative effects

Every visual effect in a photographer's creative repertoire can be achieved with a different combination of settings. As an example, a shot of a dancer moving across the frame with motion blur would need a slow shutter and lower ISO, whereas for a wide-angle image of the night sky, you'd need to set a high ISO and wide aperture. Choosing settings manually means you can realise new creative techniques and effects in your images in a more precise and controlled way.

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x3 © Dhemer Gonçalves

3 Greater consistency between shots

Often, you'll be required to produce a series of similar images rather than a standalone shot, such as a portrait or product taken from different angles, or a travel story to accompany a single editorial piece. Any time the camera moves or the lighting changes in an automatic mode, the settings will change between shots, too, making every shot look different. In Manual mode, you can keep the settings the same across your images for more uniform results.

© David Bartus / Kate Southall

4 Deal with contrasting light

Your camera's in-built light meter measures reflected light in a scene, and will always try to balance the exposure towards mid grey. Set to default, the camera meter measures light levels across the whole frame, and then records an exposure to balance the brightest or darkest areas of the image (turn to p20 for more on metering modes). This works for evenly lit scenes, but for backlit or high-contrast scenes such as at sunset, it's best to choose the exposure settings yourself.

Step 5's main image © Rawpixel/iStock / Getty Images Plus via Getty Images
ICamera insert © Dean Fikar/Moment via Getty Images

5 Spend less time editing

While shooting in Manual mode might take you longer at first, once you've had enough practice you should get more shots right, more quickly. If you can get predictable and repeatable results with your exposures, then not only will the images look more professional, but it's likely you'll be able to avoid spending too long editing mistakes at the processing stage – you can get them right in-camera by choosing the best settings for the job.

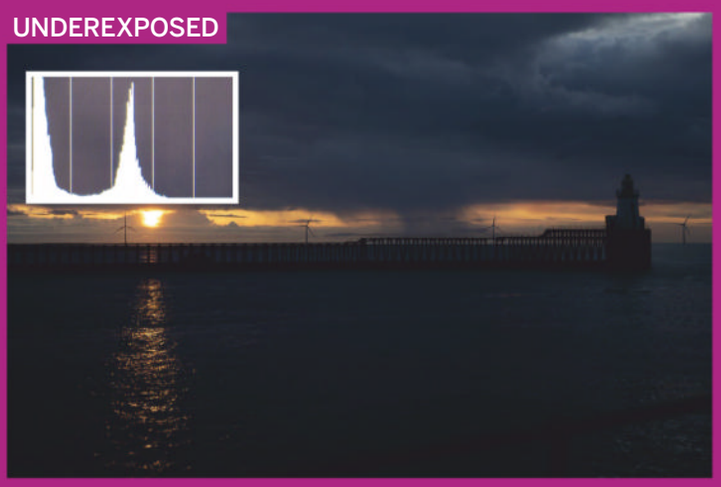
KNOW YOUR EXPOSURE SETTINGS

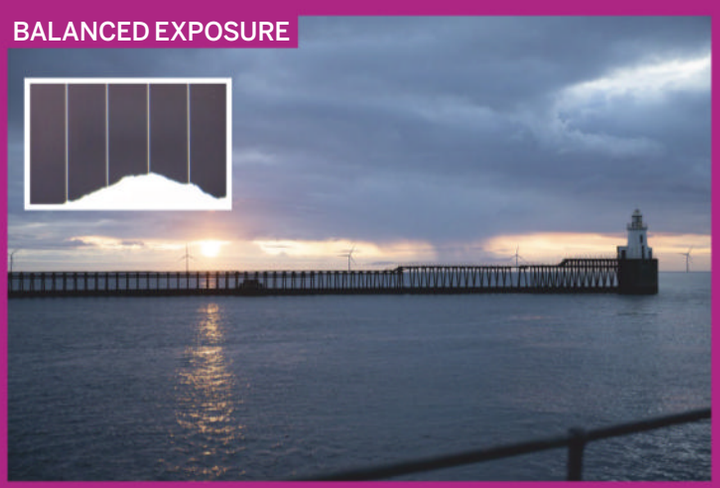
It never hurts to revisit how shutter speed, aperture and ISO work together

When you're exposing for a particular scene, you're actually carrying out a delicate balancing act. The aim is always to get just the right amount of light coming through the lens to hit the camera's sensor, by adjusting three core variables: aperture, shutter speed and ISO.

If you've only ever used auto and semi-automatic modes before, you might not have noticed that when you change a setting, the camera is automatically changing the other variables too to create a balanced shot. For example, if you close the aperture, the camera will need to extend the shutter speed to let in more light, or boost the ISO to make the sensor more sensitive to light – and so on.

There's always a bit of a compromise to be made, so to get the best creative results from your camera, refer to our exposure triangle (opposite) to see which variable you should change in any given circumstance.



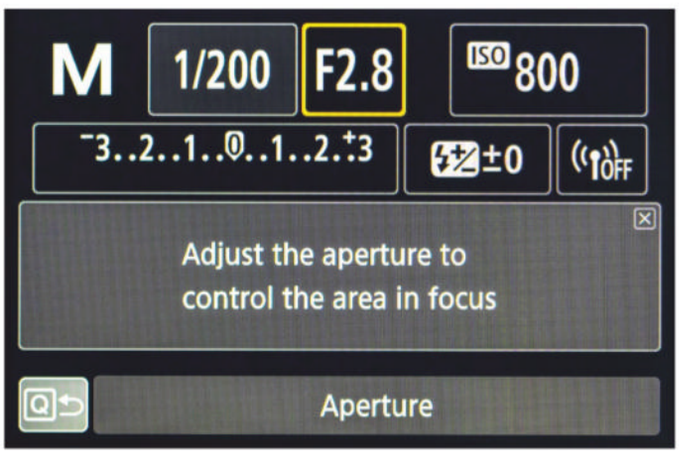


KEY TIP

UNDERSTAND WHAT THE HISTOGRAM TELLS YOU

You'll see histograms everywhere, from your camera's Live View display to editing programs such as Lightroom. These graphs show you the exposure information of your shot: if it's bunched up towards the left, it means your shot is underexposed and some of the tones have burnt out to pure black; if it's bunched up on the right it means you've lost some detail in your highlights as the shot is overexposed. An even graph with no bunched-up tones on the left or right means you have a balanced exposure.

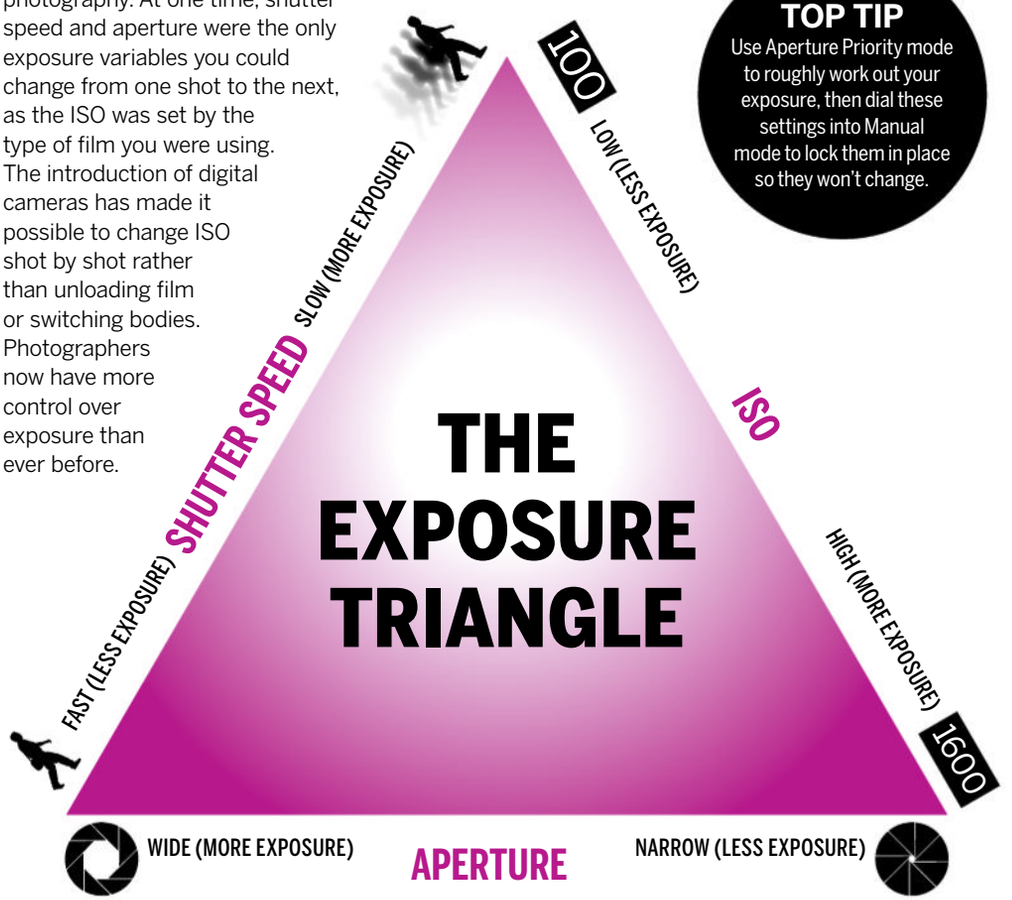
Exposure parameters



1 Aperture The aperture is a series of blades inside your lens that can be opened up or closed to let in more or less light, making the image brighter or darker. Adjusting the aperture value also alters your depth of field, determining how large your zone of sharp focus is. A wide aperture of f/2.8 will let in lots of light but also give you a shallow depth of field, blurring the background, while a narrow aperture of f/22 will let in less light, but deliver a sharper scene throughout.

Take a refresher on how exposure works by following this simple three-pointed guide

The relationship between shutter speed, aperture and ISO is at the heart of all photography. At one time, shutter speed and aperture were the only exposure variables you could change from one shot to the next, as the ISO was set by the type of film you were using. The introduction of digital cameras has made it possible to change ISO shot by shot rather than unloading film or switching bodies. Photographers now have more control over exposure than ever before.



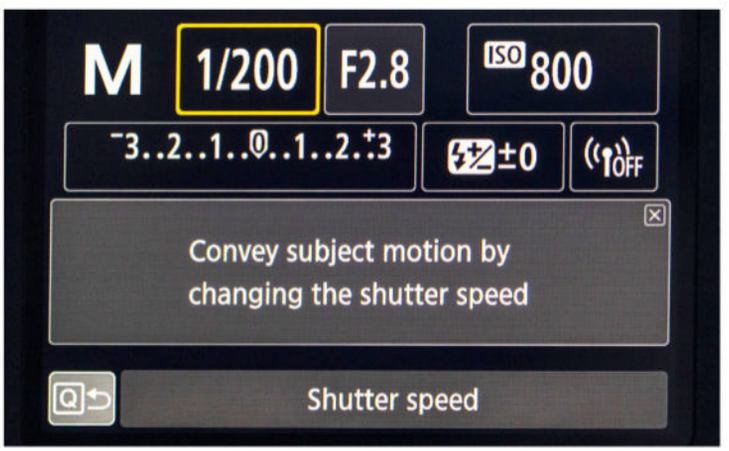
TOP TIP

Use Aperture Priority mode to roughly work out your exposure, then dial these settings into Manual mode to lock them in place so they won't change.

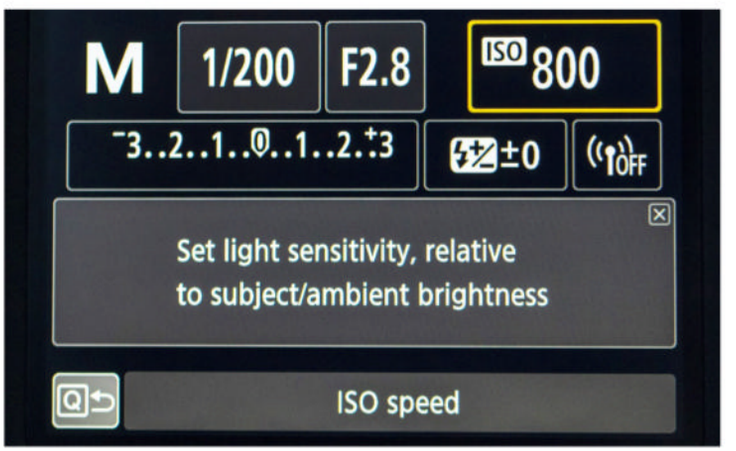
KEY TIP

TRY EXPOSURE COMPENSATION

You don't always have to go into Manual mode to take back control. If you prefer to stay in the semi-automatic modes but are noticing that your images are coming out a little brighter or darker than expected, you can make adjustments using exposure compensation. This enables you to force the camera to under or overexpose the image by a certain number of f-stops for a particular scene. Just be sure to return the exposure compensation setting back to zero when you've finished shooting, so the exposures aren't affected in future images.



2 Shutter speed This is how long the sensor is exposed to light for. Having the sensor exposed to light for longer will result in a brighter picture, but will also create more chance to pick up movement – such as motion blur if something is moving in the frame, or camera-shake caused by the vibrations in your hands. It's called shutter speed because in DSLRs and older SLR cameras there was a mechanical shutter in front of the sensor, or film, that would open and close to let in or block out the light.



3 ISO value This value changes how sensitive to light the sensor is. Increasing the sensitivity will enable you to create well-exposed pictures in low-light scenarios, but it will also amplify background noise, making the images appear more 'grainy'. However, digital imaging sensor technology and low-light performance is advancing with every new camera model, producing ever-cleaner results at higher ISO values. Typically the lowest ISO value on most cameras is 50 or 100, to produce the best image quality.

CAMERA METERING MODES EXPLAINED

Discover when to switch metering mode for the best results

In your camera's semi-automatic modes, such as Aperture Priority and Shutter Priority, you are able to input some of the exposure data – one or more of aperture, ISO and shutter speed. The camera will then use its built-in metering algorithms to work out the rest of the exposure to try to deliver a well-exposed shot. How the camera does this is affected by the metering mode that's being used.

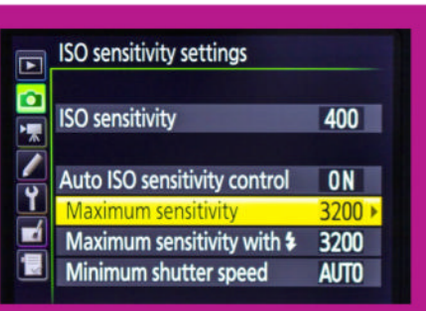
There are metering modes that scan the whole frame and try to work out the best exposure for a well-lit shot across the entire frame, and there are also modes like spot metering, which only take into account a very small part of the frame.

It's worth noting that your choice of metering mode will affect your camera's built-in light meter even when you're using Manual mode, but it'll be up to you to dial in the aperture, shutter speed and ISO settings to confirm whether you agree with the metering algorithm or you'd rather override it.

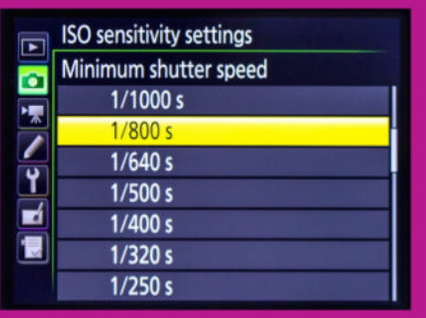
KEY TIP
HOW TO USE AUTO ISO

Although Manual mode enables you to take direct control of all three exposure parameters – aperture, shutter speed and the ISO value – many cameras enable you to select Auto ISO while you're in Manual mode. This means you can lock off the aperture and shutter speed values, but let the camera have some control over the ISO to change the exposure based on your chosen metering mode.

Some cameras enable you to set the maximum ISO value you want the camera to use, so that images don't come out too noisy, as well as the minimum shutter speed you want, so that you can ensure a fast enough shutter speed to eliminate camera shake and subject blur.

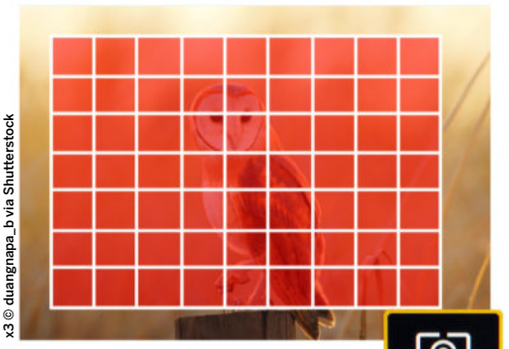


Place an Auto ISO limit to produce results with acceptable noise levels



Set the minimum shutter speed to prevent camera shake and blur

Key metering modes



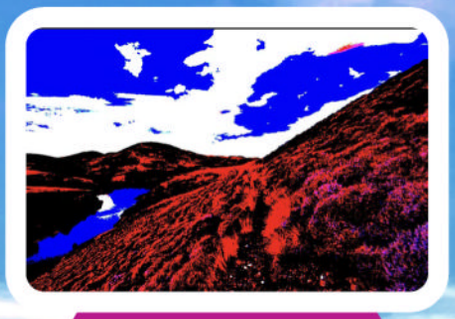
x3 © duangnapa_b via Shutterstock

1 Zone metering Often called Evaluative metering in Canon cameras or Matrix metering in Nikons, this is essentially a zone-metering system that divides up a large portion of the frame into segments, and uses algorithms to deliver a well-exposed shot in a wide range of scenarios. Some of these systems can put a bias around your autofocus point to make sure this part of the image doesn't clip. This is less useful when you want to intentionally underexpose or overexpose the picture for creative purposes.

2 Centre-weighted This mode works in a similar way to zone-based metering modes, as the whole frame is scanned and taken into account, but here the exposure is heavily biased to correctly expose for the tones in the central area of your shot, to make sure these don't become overexposed or underexposed. The diameter of the central area on a Nikon D500, for example, measures 8mm by default, or about six per cent of the frame, but can be changed to 6mm, 10mm or 13mm to give more or less weight to the central area.

3 Spot metering Spot metering systems reduce the area taken into consideration for exposure down to a small point. This is usually just one to four per cent of the centre of the frame, though some cameras let you set a spot point elsewhere on the screen or use the active AF point to spot-meter from. Some cameras have a Partial metering mode that covers a larger area of the frame (six to nine per cent), producing more consistent results than Spot metering – where slightly moving your frame can produce wildly different exposures.

Use Manual for perfectly exposed landscapes



TOP TIP

Clipping warnings vividly show you any highlights or shadow details that have blown to pure white or black; you can also view the histogram to check for any areas of lost detail.

DETAILED HIGHLIGHTS

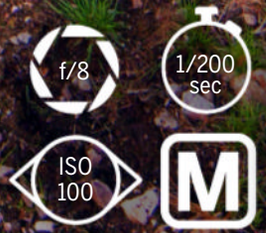
Skies are one of the most common areas where you can blow your highlights and lose detail because of an overexposed shot. Check your shot and use clipping warnings to make sure they remain full of detail.

SHOOT IN RAW

Shooting in your camera's RAW image format may fill up your memory cards a little faster, but it's worth it to have that additional exposure data. This way you can pull back details in the edit that you would otherwise lose by shooting in JPEG.

DEEP SHADOWS

A camera usually biases towards highlights or shadows – the tonal range of an imaging sensor can only capture so much. You can always blend multiple exposures while editing to expand the dynamic range in your photos.



CHANGE THE WHITE BALANCE

Get drastically different colours fast by adjusting the white balance

Colour is an important part of photography and plays a significant role in the mood of your images. Your camera's white balance can make an image appear warmer or cooler to correct for colour casts, and can ensure that neutral hues in the shot, such as grey tones, look more natural.

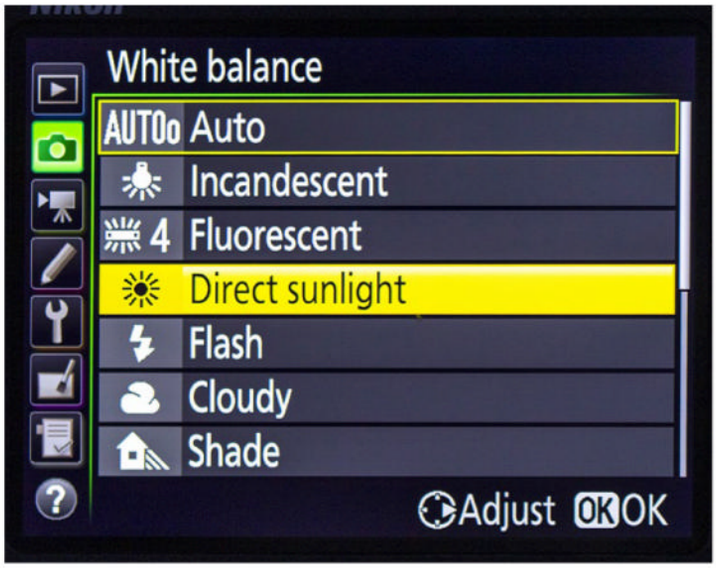
Most cameras are set to automatically determine the white balance, but in any of the semi-automatic modes or Manual you can select it, or even set your own custom value. This can be handy when you want consistent results in a series of images, such as a time-lapse or a focus stack. We'd also highly recommend shooting RAW-format files, as this makes it much easier to change your white balance during editing.

It's also worth experimenting with white balance when shooting for black and white, as the setting will also have an effect on the contrast of your mono tones.

KEY TIP
USING MANUAL FOCUS

Camera settings are full of technical terms and jargon, and we use the word manual in two different ways when we talk about cameras. Unlike the Manual shooting mode, which allows you to set exposure parameters like aperture and shutter speed, the Manual Focus mode enables you to change your focus using the focusing ring on your lens. This is commonly engaged by flicking a switch on the lens barrel, though it is sometimes set on one of the menu screens. The Manual Focus mode (MF) lets you change the focus distance of your lens and has no bearing on exposure settings like aperture, shutter speed and ISO value.

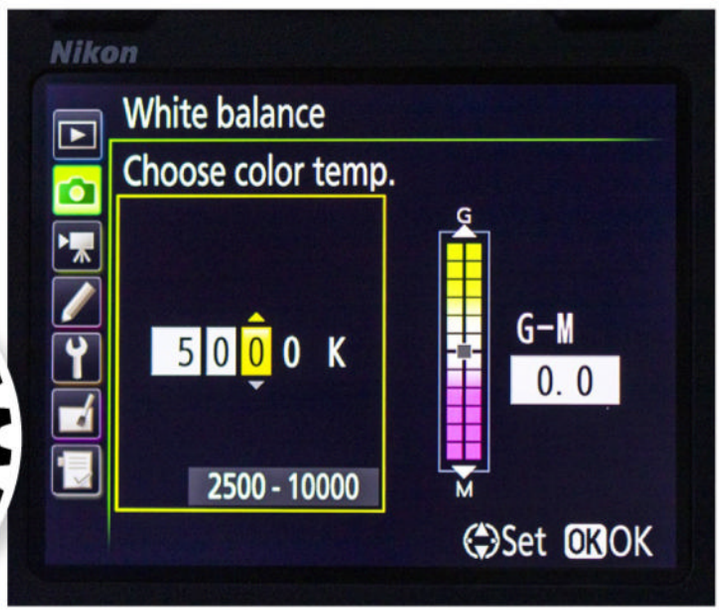
Adjust white balance



1 Set the white balance in-camera Creative cameras let you set your white balance to a multitude of different settings. Each one is designed to be used for a specific occasion, such as when you're using flash or shooting in direct sunlight.

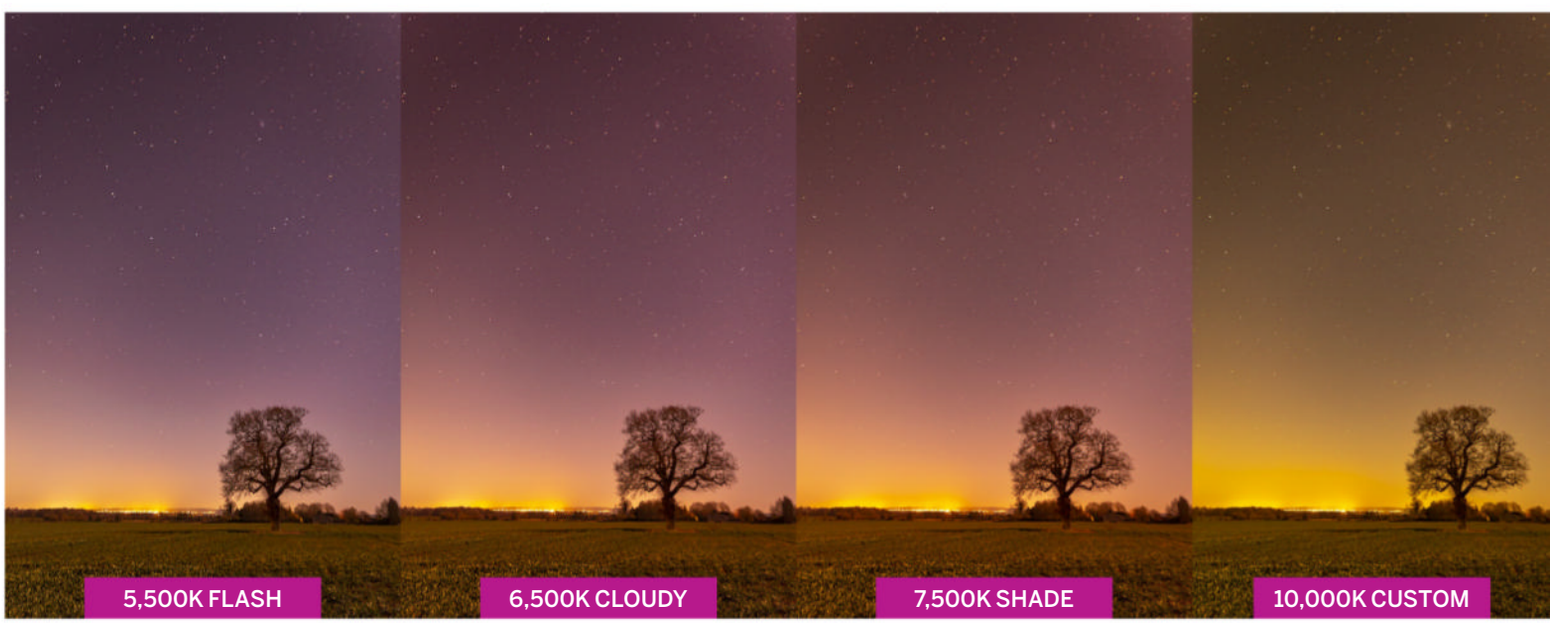
Auto White Balance usually does a pretty good job at getting the colour temperature right, but it doesn't always get it spot on. When this happens, set the white balance yourself to lock it off, which will help to make sure you get the result you want.

It's usually worth spending the time to get the white balance right in-camera, as it will cut down on editing time when you get back to your computer.

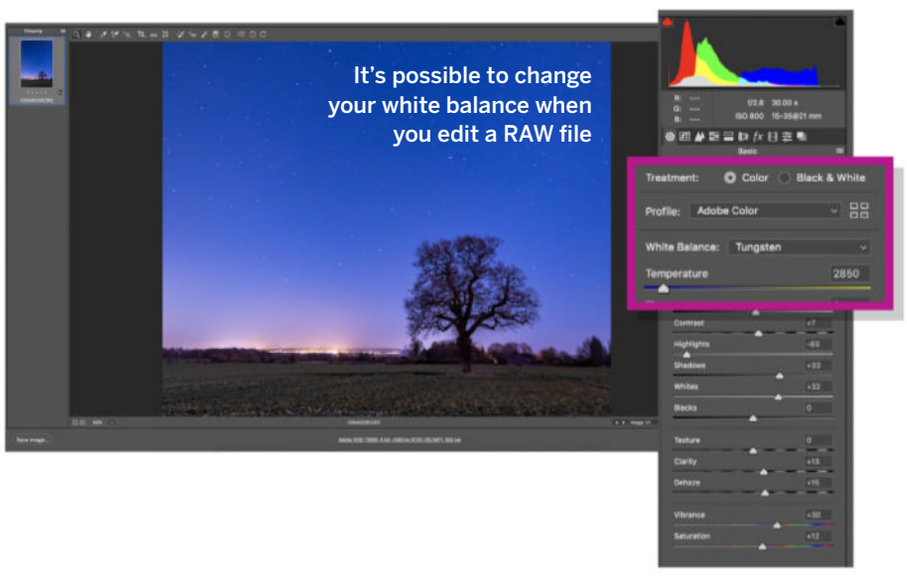


2 Set a custom white balance To take even more control of your white balance, you can set up a custom colour temperature. On this Nikon DSLR, we are able to set any value of our choosing between 2,500K (for a cooler, blue look) and 10,000K (for a warmer, more orange look). This can really have a big impact on your shots, particularly landscapes, if you find they're coming out a bit dull and grey. A white balance tweak can make all the difference in bringing a bit of colour into the shot. Remember to reset your white balance after you've taken the shot.

Adjust white balance to make pictures warmer or cooler



3 Change the white balance in Camera Raw If you shoot in your camera's RAW format, you'll get much more exposure information when you edit the shot later, making it a breeze to adjust exposure and white balance back at your computer. This is incredibly handy, and a near-impossible feat if you shoot JPEGs. Bring your RAW file into a RAW editing program, such as Lightroom or Photoshop CC's Camera Raw plug-in, and you can change the white balance, either using presets, or manually with the Temperature slider.



PUT IT ALL TOGETHER...

Let's use everything we've learned so far to produce fantastic results by going manual

Portraits can be quite tricky to take. This image of our model Claudia was no different, as she was totally lit by this neon sign in a shop window. Here we locked off the white balance and set it to Fluorescent so that we would consistently get a vibrant red colour from the neon. Then we went into Manual mode to take control of the exposure, too. The neon sign was quite bright, so with the aperture opened all the way to f/1.4, we only needed to boost the ISO to 200 to get a shutter speed of 1/100 sec – fast enough to shoot handheld without camera shake.

We also made sure that the focus was on the eye nearest to the camera so that it would be pin-sharp with a shallow depth of field; this leaves no doubt that it's the focal point to anchor the shot.

Shooting in Manual mode made it possible to totally lock off the settings, so we could purely concentrate on the composition and focusing, which would be the trickiest part of this neon-lit portrait with such a wide aperture. Safe in the knowledge that the exposure was spot-on, we focused and took the shot, then checked it on the camera's rear screen to make sure the focus was perfect.

Five things to consider when you take a shot in Manual mode

APERTURE VALUE
Here we used a super-wide aperture of f/1.4 to let in lots of light for this dimly lit night scene. This also created a very shallow depth of field, with the model's face sharp but the background blurred.

Seeing red Override the camera to get perfect exposures in difficult lighting

-2 -1 0 +1 +2

UNDEREXPOSED BY -2 EV
The exposure was wrong here, so we underexposed to retain detail.

-2 -1 0 +1 +2

'CORRECT' CAMERA EXPOSURE 0 EV
Colours and tones are starting to clip to pure white, so there's some detail loss.

-2 -1 0 +1 +2

OVEREXPOSED BY -2 EV
The highlights are blown in the neon sign, and details in the face have been lost.

METERING MODE
For a reference point, we started off by using zone metering, but the results were coming out a little too bright. We went into Manual mode for full control.

MANUAL FOCUS
When shooting with a super-wide aperture like f/1.4, it's important to get the focus right, so here we used Manual Focus to make sure Claudia's eye was perfectly in focus.

WHITE BALANCE
To make sure we got consistent colours and tones in the shot, we switched over to the Fluorescent white balance setting and shot in RAW format.

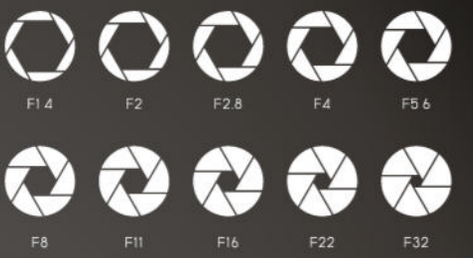
SHUTTER SPEED
We set the ISO to 200 for good image quality, and used a shutter speed of 1/100 sec, which was fast enough to stop camera shake while handholding the camera.

MANUAL MODE Cheat sheet

ISO

ISO meter: 6400 · 3200 · 1600 · 800 · 640 · 400 · 200 · 100

Aperture



Depth of Field

SHUTTER SPEED

Shutter speed

Slow Brighter — **Fast** Darker

Longer exposure	30"	20"	10"	1"	1/25	1/3	1/5	1/60	1/25	1/250	1/500	1/1000	Shorter exposure
	Motion blur			Tripod Advised			Handheld OK			Freeze motion			

Night photography — Outdoor sunny day — Sport photography

White balance

Auto	Daylight	Cloudy	Shady	Tungsten	Fluorescent	Flash	Custom
Camera controls WB	Usually about 5000K	About 7000K, adds warm tones	Gives even warmer tones	3200K or below, adds cooler tones	Gives a magenta tone	Getting a little cooler	You control the WB

Metering modes

Zone metering — Centre-weighted — Spot metering

Exposure

Optimal exposure — Underexposure — Overexposure

CUSTOMISE YOUR CAMERA

Make your new camera work for you by setting it up to your preferences

Cameras are fairly complex pieces of machinery and there are many buttons, dials and controls to get your head around. However, digital cameras have even more functions hidden away in their menus that you can't necessarily access via a physical, on-body control when you get it fresh from the factory. Most cameras today allow you to reassign functions to dedicated Fn buttons dotted around the body, as well as set up the dials to work in a bespoke way. Customising your camera speeds up shooting and this means fewer missed photos when you're out and about. Let's look at some of the main ways you can make your camera body work better for you. All of these can be found by navigating to the custom functions tab in your main camera menu and all of the button assignment options will be visible there too.

Function buttons
There are often two or three Fn buttons added to a camera which can be assigned a function of your choosing. We set one to activate Exposure Bracketing so this can be activated with the ring finger without taking the index finger away from the shutter release and another to autofocus mode.

Custom lens controls
The latest lenses often feature control rings in addition to the standard zoom and focus rings DSLR lenses used to have. The features are integrated with the camera so you can set a function to each, such as aperture or ISO. You can also customise the ring rotation direction to taste.

Custom mode dial
Save settings to custom mode dial positions. Many cameras allow you to dial in a shutter speed, aperture and ISO combination for different subjects, then save this to a preset position, often designated C1-3 or U1-3 etc. This makes it possible to instantly load the correct settings when the lighting changes.

Set button
This is usually located in the middle of the rear scroll wheel or four-way pad. We chose to assign it white balance selection for speed. With a single tap of this centrally-located button a white balance preset can be chosen, instead of scrolling through the main camera settings menu.

Dial direction
This is often overlooked but you can even change the direction the main control dials work. You might choose to do this because your previous camera worked with the dials going the opposite way, so customising the new controls makes it easier to learn how to use your new camera body.

Auto zoom
We often need to zoom in to check sharpness after an important shot, but using the zoom button to slowly magnify every image is time-consuming and can result in missed shots. Set one-touch zoom so the button automatically jumps to 100% zoom after a single press.

Pictured
Complex choice
The selection of lenses for use in the pro arena can be intimidating. There's a large variety of types, technologies and features available on the market today

MASTER YOUR LENS

Explore advanced lens technology and discover exciting ways to improve your

Lenses are critical components in the photographer's toolkit. While novice shooters often believe the camera to be the most important aspect of a gear system, those with more experience recognise that the type and quality of the glass in front of the sensor is the bigger factor in the success of the final image. Regardless of how many pixels a CMOS chip may be equipped with, or how effective the signal-to-noise ratio, if the optic used to focus light into the camera body is inferior, the fine-detail resolution will never be fully realised. Similarly, if a less-than-optimal focal length is utilised, it may result in an ineffective or inferior composition.

SETS

images in the field

There is more to focal-length choice than how 'zoomed in' the frame becomes. The choice of setting impacts foreground and background elements, altering their dominance in the frame. Meanwhile, the choice of focal length within the zoom range of a lens can influence the maximum sharpness, as lens contrast and resolution can vary from setting to setting. Only with a good knowledge of the lens and of the common pitfalls of the lens type can a photographer make informed decisions about each optic.

In this guide to lens choice we will explore the world of optical science and its practical applications in our day-to-day work.

Internal lens anatomy

ELEMENTS/ GROUPS
The glass elements are arranged in clusters, the number and position of which contributes to the lens functionality and quality.

FOCUS MOTOR
The motor drives the movement of the elements in a track in the lens barrel, once autofocus is activated.

APERTURE DIAPHRAGM
This is the assembly of movable blades, which together construct the aperture opening, controlling light admittance and depth of field.

LENS COATINGS
Layers of chemical compounds generally form a crystalline structure, which adds optical adjustment to the light path for corrective purposes.

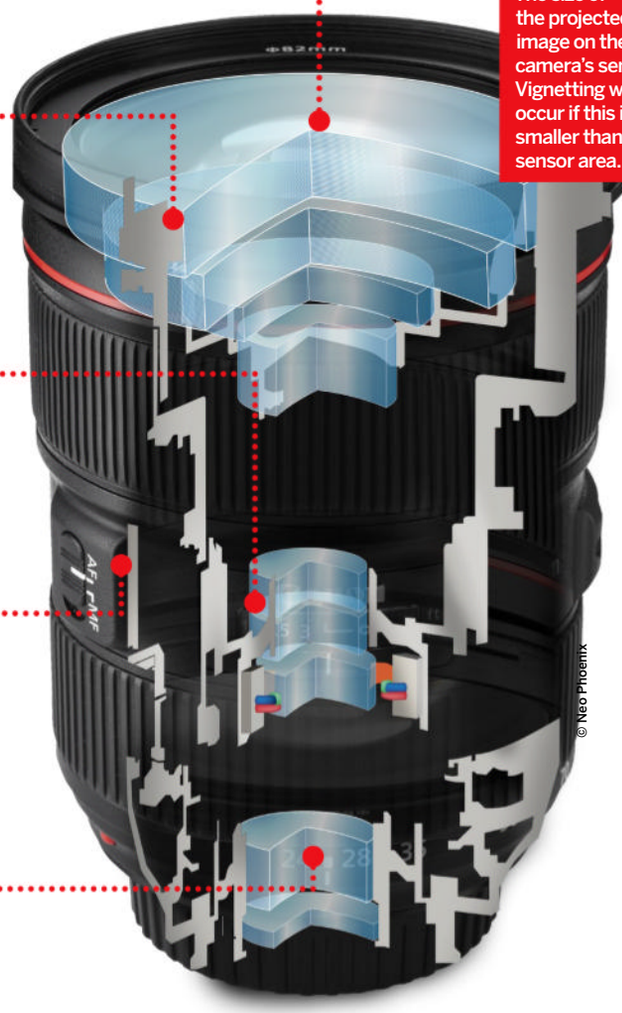


IMAGE CIRCLE
The size of the projected image on the camera's sensor. Vignetting will occur if this is smaller than the sensor area.

© Neo Phoenix

Right
Tool for the job
While having multiple lenses can complicate gear selection, no single optic is ideal for every situation. Understanding which features are most useful for your regular subjects will always yield better images

© Peter Fenech

UNDERSTAND YOUR LENSES

Get to grips with the most common lens features

One of the most challenging aspects of professional photography is that the tools we use are incredibly complex pieces of equipment that the majority of us are unqualified to deconstruct and reassemble. In other industries, even those in the technology sector, it is quite feasible to customise tools, make repairs, perform upgrades, and even salvage parts for reuse in other items. The construction of lenses is performed to micrometre-level precision, using specialised assembly lines operated by trained professionals in sterile environments. Even the slightest misalignment can render a product unusable, as can dust and other contaminants.

The terminology of lenses is often far from self-explanatory, and is made more confusing by variations between different manufacturers. Modern lenses come armed with a wealth of advanced technology – some software based, some hardware and chemistry related. Each feature is responsible for a small portion of the overall design, which is tailored to produce the optimal sharpness and contrast, with minimal distortion.

Understanding the technology present in a lens is essential for making informed decisions about which models you need in your kitbag. As with most photographic equipment, there are times when you will find that a feature does not offer a significant-enough advantage to justify the financial outlay, while in other circumstances it may be almost impossible to create the images you need without a certain piece of kit. With photographic lenses the presence of such features may not be indicated as obviously as by having a physical switch. Often features will be denoted by prefixes or suffixes in the lens nomenclature.

This can make lenses seem like an obscure and intimidating area of the market. Here we'll take an in-depth look at lens technology and the terms that are commonly used to indicate its inclusion.

External lens features

HOOD AND FILTER THREADS
Attachments for accessories. Circular filters can be adapted with stepping rings if necessary, while some wide lenses have built-in lens hoods.

ZOOM AND FOCUS RINGS
The most noticeable lens controls, these are present on almost every lens, although the size and position can affect handling quality and purpose.

MODE SWITCHES
There are switches for stabilisation modes, autofocus modes, and on some lenses locks for focus and zoom settings. Older lenses may integrate these switches with on-camera controls.

LENS MOUNT (INC FILTERS)
The bayonet thread enables attachment to a compatible camera model. On some lenses there is a rear filter mount here if the front element is too large.

© Canon

FOCUS WINDOW
A focus-distance scale is used for estimating focus position and depth of field. For the latter, double-distance focusing is arguably more effective than the hyperfocal method.

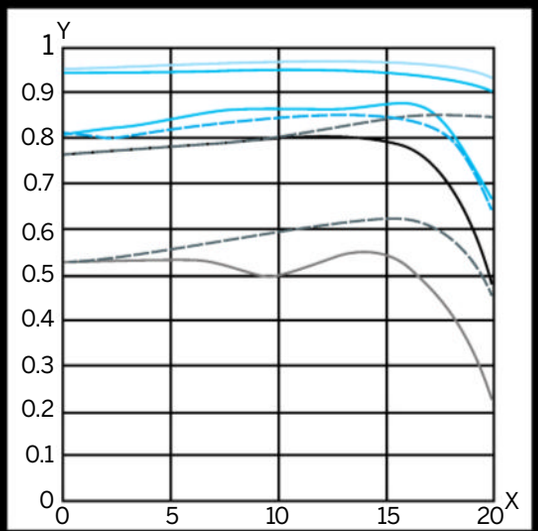
Assess lens quality

Understand and use MTF charts

MTF (modular transfer function) charts plot the resolution and contrast of a lens from the centre to the edges of the frame. In this example the blue lines represent performance when stopped down to f/8, while the black lines show results when shooting at maximum aperture. The thick lines show contrast, while resolution is demonstrated by the thin lines. Each of these lines has a solid and dotted version, showing sagittal (parallel to the image diagonal) and meridional (perpendicular to the image diagonal) performance respectively. A perfect lens would have all of the lines travelling horizontally across the top of the chart.

EDGE PERFORMANCE
Contrast remains above 0.8 so is considered good, but resolution at both apertures falls at the edges.

CENTRE SHARPNESS
This lens demonstrates excellent centre resolution with both aperture lines >0.6.



WIDE-OPEN QUALITY
This optic shows good uniformity, with only moderately lower performance wide open than at f/8.

THE MEANING OF X AND Y
The Y axis represents performance, while the X axis is distance (in mm) from the centre of the lens.

The closer the solid and dotted lines are to each other, the more natural out-of-focus areas appear. The straighter the lines are, the better the centre-to-edge performance. The higher the lines appear in the graph, the better the contrast or sharpness is.

WIDE-ANGLE WORLD

Get more from wide-angle perspectives by selecting the best lenses for your needs

Wide-angle lenses are generally accepted to be optics with a focal length of less than approximately 40mm, and today they cover everything down to 10mm for APS-C camera models and around 12mm for full-frame sensors. These are the optics of choice for professional landscape and travel photographers, but they find a use in a much greater range of shooting scenarios, from environmental portraiture to sports.

In some respects it is in this range of optics that naming conventions have the most potential to confuse buyers. This is because, as digital photography developed, there was a division between lenses that were needed for wide-angle photography on digital models, and those that were capable of being brought over from film systems.

Due to the smaller sensor area of early digital cameras and the APS-C models available today, the multiplication factor applied to the focal length of mounted lenses means that wider than usual settings are needed to produce truly wide-angle perspectives. The optical designs required to enable this to happen, however, mean that standard full-frame compatible lenses would be prohibitively large, heavy and expensive to manufacture. The solution has been to produce lines of digital-only lenses, with smaller image circles to cover the smaller sensor formats. This enables reduced focal lengths without enormous element diameters.

It is important to recognise which lenses are available for use on both crop-frame and 24x36mm format sensors. While there are now telephoto lenses with smaller image circles, this is usually for weight and portability benefits in mirrorless camera systems.

Other key features of wide-angle lenses are those that address the optical challenges of wide perspectives. These include chemical coatings and glass element designs to reduce edge fringing and geometric distortions, among other things. Designations to look out for are ASPH, which indicates the use of aspherical elements for reduced distortion, and ED or ULD, which denotes special low-dispersion glass. These lens elements are designed to more effectively focus light of different colours at the same point, thereby reducing chromatic aberration.

Wide-angle range

We break down the choice of wide-angle optics

STANDARD ZOOM
A 24-70mm f/2.8 is the pro standard in multiple fields. The zoom range covers wide to short telephoto, offering dynamic composition with a bright f-stop. Look for a model with image stabilisation for maximum handheld sharpness. Great for: weddings, travel, commercial, portraits, landscapes.

FAST WIDE-ANGLE PRIME
For the ultimate sharpness a prime lens is the pro option. A 35mm f/1.4 provides a slightly wider perspective than the human eye (on full-frame – use a 24mm for APS-C), combined with a bright aperture for handheld shots and shallow depth of field. Great for: events, environmental portraits, scenics.

ULTRA-WIDE ZOOM
For landscape shooters and interior photographers a 14-24mm or 16-35mm pro zoom is a go-to lens. These models provide a short field of view with the flexibility of a variable focal length and often a constant f/2.8 aperture. Great for: landscapes, property, weddings.

Terminology translator

Bust through the technical jargon with this cross-manufacturer guide

Right above
Vignetting management
At shorter focal lengths it is important to control the darkening of the frame edges. Avoid stacking circular filters that will protrude from the lens to prevent 'hard vignetting'

Right
True wide angle
To achieve the same wide perspective as offered by full-frame cameras, models with a smaller sensor must be paired with 'digital only' optics of 12mm or wider

Feature	Canon	Nikon	Sony	Fujifilm	Sigma	Tamron
Low dispersion glass	UD	ED	ED	ED	ELD SLD FLD	AD LD XLD
Weather resistance	-	FC	-	WR	-	-
Full-frame compatibility	EF	FX	FE	-	DG	Di
APS-C only	EF-S	DX	E	XF	DC	Di II
Flare/ghost reduction	SWC ASC	N SIC ML	AR T*	EBC	SML	BBAR

© Hansie Guichardo

Fluorine coatings

Not all lens coatings have a direct image-quality function – newer lenses sometimes feature fluorine or similar surface coatings, which have anti-static or dust and water-repellent properties. These reduce contaminant accumulation and make it easier to remove these without smearing or scratching. Lenses may not have these features in the name but will be more likely on pro-branded models, such as Canon's L series or Tamron's SP (Special Performance) range.

© Peter Fenech

Look out for ASPH, which indicates the use of aspherical elements for reduced distortion

© Tomas Anunziata

© Alex Andrews

Above
Full-time manual
When using long lenses it is helpful to combine auto and manual focusing. Pro optics usually allow manual focusing even in AF mode for micro-adjustments – to keep eyes sharp, for example

Above right
Pro lens controls
Wildlife and sports photographers make full use of on-lens controls such as AF stop and focus preset buttons. These enable precise control of focusing for fast-moving subjects

GET TO KNOW TELEPHOTOS

Long optics are loaded with advanced features

Just as ultra-wide lenses are required for stretched perspectives, frame-filling shots of far-off subjects cannot be achieved without the use of telephoto optics. Whether you select a long telephoto prime lens, such as a 500mm f/4, or a telephoto zoom, like a 70-300mm f/4-5.6, these models enable the photographer to refine their composition precisely, cropping out unwanted environmental detail. Equally, for portrait images or some landscape scenes, using a longer focal length can compress perspective, appearing to bring the background closer and reducing distortion of facial features.

These lenses are usually the choice of wildlife and sports photographers – most notably models with focal lengths of above 300mm. For this reason the features incorporated into telephotos are usually geared towards allowing rapid work – quickly achieving focus and enabling near-instantaneous recomposition.

Due to the higher magnification, camera shake is also a far greater probability when using telephoto optics, so professional models almost always make use of image stabilisation technology. This makes handheld shooting in lower ambient lighting a possibility, by varying the position of specialised lens elements to counteract camera shift. The effectiveness of this system varies from lens to lens, although most contemporary stabilisers enable up to three stops of shake reduction as a minimum.

On more advanced lenses you will find additional speed-beneficial features, such as supersonic wave autofocus motors, internal and rear-focusing mechanisms, and the ability to apply manual focus adjustments at any time, even if AF is active. While these may not be worth the extra investment if you rarely shoot in extremely fast-moving scenarios, for working pros and advanced enthusiasts they can mean the difference between grabbing a shot and missing a winning opportunity.

Stabilisation modes

Select the correct stabilisation option for the subject

STANDARD MODE
The option for everyday handheld shooting. This will reduce movement across both axes, minimising blur for up and down and side to side shift by up to around five stops. Deactivate this when using a tripod to avoid the introduction of blur.

TRIPOD MODE
A specialised mode for when a lens is tripod-mounted to minimise small vibrations. This is better than Standard mode for tripod shooting, which can create blur when the camera is still via movement of the lens elements.

PANNING MODE
When you want to intentionally introduce blur this mode will not attempt to reduce the panning motion. Only extraneous movements will be addressed, for sharp subjects with dynamic backgrounds.

Essential telephoto features

Identify the most common aspects of professional long optics

REAR FILTER SLOT
Long lenses often have large front elements precluding filter attachment. This slot allows dedicated rear filters to be used instead.

AF BUTTONS
For sports and wildlife photography, when speed is key, it is helpful to assign autofocus to these buttons, and metering to the shutter button.

TRIPOD FOOT
This enables rapid rotation of the camera into portrait orientation and provides more balanced support of the lens's weight on a monopod.

Terminology translator

Know and understand what you're getting in your telephoto optics

Feature	Canon	Nikon	Sony	Fuji	Sigma	Tamron
Image stabilisation	IS	VR	OSS	OIS	OS	VC
Rapid focus motor	USM	SWM (AF-S)	SSM DDSSM	LM	HSM	USD PZD
Internal focussing	USM	IF RF	IF	-	IF	IF
Professional lens range	L	-	G GM	XF	EX	SP

Super-fast primes
Some systems feature f/1.2 or even f/1 lenses, offering superb background blurring. This can create focusing challenges, however, and stopping down slightly provides a sharpness-bokeh balance.

Tilt/shift features

See how a tilt/shift lens can benefit your everyday photography

TILT FUNCTION
Beyond the popular miniature effect, tilt enables fine control of depth of field, enabling front-to-back sharpness at the optimal aperture (usually f/8). This reduces the need to stop down the lens, minimising diffraction. Only with a field camera can this level of focus-plane control be achieved in another way.

FILTER COMPATIBILITY
Wider tilt/shift optics may feature bulbous front elements that do not accept standard screw-thread filters. However, 24mm lenses and longer usually fit 72mm-82mm filter sizes. This makes these models ideal for landscape photography, with minimal adaptation to the usual workflow.

Aperture blade count

The more blades that are used to form the aperture diaphragm in your lens, the smaller the angle between each one. This creates a more circular opening, which generates rounded, out-of-focus background highlights, generally regarded as more attractive. Look for seven to nine-bladed models.

SELECT SPECIALIST LENSES

For more niche areas of photography, make use of dedicated optical tools

As a new photographer it is often advisable to invest in less specialist lens models, instead selecting products that can allow us to access a broad range of image types and study a greater variety of subjects. This is because we may not yet be certain which area of the medium interests us the most, so it is a good idea to develop skills across the board to prepare us for later specialisation. As working pros or enthusiast photographers with refined tastes in image styles and subject matter, however, it can be frustrating to attempt images without dedicated kit.

For macro photography, for instance, while it is possible to capture close-up images without a true macro lens – a model with 1:1 life-size magnification – no other model is adequate for small subjects such as insects. Since these are physically small in comparison to the size of the sensor, they will require enlargement to fill a significant proportion of the frame area. This is especially true for full-frame cameras, which do not benefit from the magnification factor of APS-C models such as the Canon EOS R7, Nikon Z 50, or Fujifilm X-T5. There are multiple types of macro lens, and even once you have decided to invest, you have to choose a lens that is appropriate for the types of subject you regularly shoot.

Furthermore, for special effects, dedicated lenses are essentially the only option for creating the look the photographer desires. While fisheye effects can be applied in software, the style is not identical to the optical effect and does not provide the wide-angle field of view a true fisheye can apply. Similarly, although the filter galleries in Photoshop and other programs can simulate tilt/shift blurring, this is only an estimation and cannot directly replicate the fall-off in focus generated by manipulating the focal plane. Moreover, the functionality of a perspective-control optic goes far beyond focus effects. There is no filter capable of reproducing the straightening of converging verticals that these lenses can achieve.

As in any trade, specialist equipment requires specialist skills for proper use and correct results. Here, we will look in a bit more depth at some of the key features of niche and 'creative' lenses.

MANUAL FOCUS
A potential disadvantage for some users is the lack of autofocus capability, but since focus will often be fine-tuned with tilt this should not be an issue. A focus-distance scale is often available for distance measurement and as an aid to critical focusing.

SHIFT MOVEMENT
By twisting the shift control, the front of the lens can be moved in two axes, enabling a precise change in composition. This allows the photographer to capture buildings without tilting the camera and introducing converging verticals. Shift panoramas are also free of parallax error.

Select a macro lens

Macro lenses aren't ideal for every subject. Choose the best for you

SHORT MACRO
An affordable, lightweight option, these lenses usually have a focal length of 50mm or 60mm and are essentially a standard lens with a macro function. They offer true 1:1 images but require very close working distances, potentially unsuitable for skittish subjects.

TELEPHOTO MACRO
A lens in the 150mm to 200mm range allows a much greater working distance, enabling high-magnification images of insects and small animals from several metres away. These optics are often far more expensive and heavy, but are arguably the best pro option.

SPECIALIST
For ultra-high magnification images we can use extension tubes or bellows, but a few lenses, such as the Canon MP-E 65mm f/2.8 1-5x Macro Photo, enable greater than life-size shooting. These are usually used for scientific purposes.

Fisheye perspective
Fisheye lenses offer a unique view. While circular fisheye models have more limited use, diagonal types offer ultra-wide perspectives for a broad variety of subjects, from wildlife to landscapes and interiors.

TROUBLESHOOT LENS ISSUES

Overcome challenges of lens operation by understanding causes and solutions

One of the main difficulties with lenses as the tools of our trade is that they are made up of many advanced optical and electrical technologies, which we cannot easily gain access to, let alone tinker with. They're complex bits of kit. While there are some technical malfunctions whose causes we can easily diagnose ourselves and potentially even fix, many are either beyond our capabilities or best left to trained professionals – for insurance reasons if nothing else.

As working photographers it is our responsibility to maintain our equipment to operating standards, but unfortunately, when gear is in frequent use, sudden breakdowns or abnormal functioning is inevitable. In most cases, assuming the overall upkeep is of a high quality, lens issues should be confined to minor software glitches, unintentional mode changes on the part of the user, or temporary electrical failures. The majority of these have relatively quick solutions that can be applied in the field, with minimal disruption to the flow of your shoot.

An effective strategy is to run through some quick checklists when encountering lens malfunctions. The first step is to check the lens barrel for unexpected switch positions, which could have been moved by accident. Since modern lenses are tightly integrated with camera function, and the two parts of the system are in continuous electrical contact, the next step should be to run through related

Jargon demystified: flange depth

Flange distance or depth is the distance between the position at which the lens is mounted on a camera and the sensor plane. This varies between camera systems and must be considered when adapting lenses. If an incorrect lens-camera pairing occurs, the rear of the lens may protrude into the camera, causing damage to moving parts.

camera menus to ensure that AF modes have not been altered or custom functions manipulated. Finally, if the route of your problem remains unidentified, turn your attention to the physical contacts between the camera and the lens.

Systematically discounting potential causes enables us to rapidly find the root cause of the lens's issue without introducing further complications through inadvertent setting changes. In any troubleshooting scenario, when there is a need to rapidly resolve the problem, we should avoid moving the camera setup away from the current state it's in. That way, if we are still unable to capture the images we need, we can at least be certain that it is because of the initial issue we encountered, and not a secondary problem we have subsequently introduced.

Rapid troubleshooting
When shooting important one-off events, such as weddings, it is important to be able to quickly diagnose and resolve technical issues to reduce disruption

© Minghui Li

Error messages

Challenge:

Your camera displays a message stating a communication breakdown between the body and lens. This may be an error number that must be referenced in the camera manual or on the manufacturer's website.

Solution:

First, clean the contacts in both the lens mount of the camera and on the bayonet mount of the lens. Use an anti-static cloth to remove charge and any grease that might be causing interference. If using lens adaptors or extenders, check that your model supports AF and aperture control.

Lens fogging

Challenge:

When moving between environments of different temperatures, lens fogging is a common problem. Streaking can occur when attempting to remove condensation, slowing down the photographic process.

Solution:

It is best to avoid fogging occurring at all, rather than attempting to remove it once it's happened. Before moving into a warmer or cooler environment, place the lens in an insulated bag with silica gel, which will allow it to acclimatise more slowly, with reduced moisture.

Incorrect exposure

Challenge:

Your camera seems unable to properly expose your images, with underexposure or overexposure occurring repeatedly, regardless of the shooting mode selected. Depth-of-field control is also unavailable.

Solution:

If using a lens with an aperture ring, ensure this is set to the A position for automatic aperture control, without which exposure can only be controlled with shutter speed. Alternatively the aperture ribbon may have failed, requiring a simple repair.

Focus hunting

Challenge:

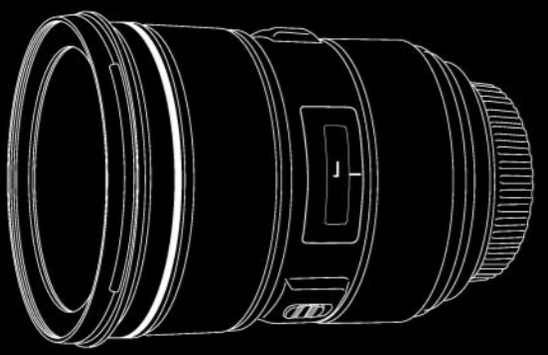
Your macro or telephoto lens fails to achieve focus and repeatedly hunts for the correct focus position, moving the lens elements back and forth. This is especially common when focusing on far objects following near subjects, or vice versa.

Solution:

Check that your lens's focus limit switch is not locked on a specific focus range, which will prevent the lens from focusing on both near and far distances. Conversely, when focusing at close distances, try using focus limit to narrow the possible movement of the lens elements.

COMMON MISTAKES AND SOLUTIONS

Avoid these frequently overlooked problems for greater stability, exposure and security



1 Lens hood misuse Many photographers forget to reverse their lens hood when in use. While reverse-mounting the hood is practical for storage, it performs no protective or flare-reducing function in this configuration.

2 Tripod position Longer lenses have a tripod foot for good reason. Always mount your camera using this, and not the camera thread, to reduce load on the lens mount, increase stability and reduce wear.

3 Support your lens Holding the lens at the base offers minimal stability and can actually introduce vibrations. Support the lens at least half way along the barrel, towards the setup's centre of gravity.

UNDERSTAND FILTERS

Add these essential accessories to your kit bag for better shots

The main filter types

Circular polariser

The landscape photographer's secret weapon! This filter cuts polarised light, reducing sheen on reflective surfaces like glass and wet rocks. Polarisers also deepen colour saturation, most notably in blue skies. The 'circular' part of the name doesn't refer to the physical shape, it's just referring to how the filter structure works.

Full ND

Neutral Density filters are the easiest to understand – they simply reduce the amount of light entering the camera lens, which allows longer exposures. This is essential when you want to blur moving subjects or water but you're already at the lowest ISO and smallest f/stop. They come in various strengths (see the table below).

Variable ND

This is like multiple ND filters rolled into one. By rotating the outer rim, you can choose different ND strengths depending on how much light you want to filter, all without having to change filters. Do be careful at wide focal lengths though – the filter can introduce a black cross phenomenon.

ND Grads

Similar to ND filters but these are only darkened at the top. This allows you to balance the exposure of the sky and the foreground, which are often greatly different in brightness. An ND grad enables you to set the exposure for the foreground without blowing detail in the bright sky.

Creative filters

The choice is plentiful, but we'd recommend experimenting with soft-focus filters for portraits, which create an ethereal glow. Starburst filters turn points of light into attractive diamonds, which can also be good for some cityscape scenes. Be mindful of over-using any creative filters as the effect can't be undone once the shot is taken!

UV protector

The most common filter type. These don't have as much of an obvious effect as some other filters but they do reduce haze caused by Ultraviolet light. Their main use is to prevent the front element of your lens from being scratched. Keep this on your lens when other filters are not in use.

Get to grips with filter factor

Filter model	Optical Density	EV reduction	Use for
ND2	0.3	1 stop	Minor correction
ND4	0.6	2 stops	Wind motion
ND8	0.9	3 stops	Wave movement
ND16	1.2	4 stops	Small waves
ND32	1.5	5 stops	Abstract woodland
ND64	1.8	6 stops	Max aperture video
ND128	2.1	7 stops	Wind vibration reduction
ND256	2.4	8 stops	Glassy water
ND500	2.7	9 stops	Traffic trails
ND1000	3.0	10 stops	Mid-day long exposures

Choose a holder

There are multiple types and filter systems to choose from but we'd recommend going for a 100mm system. Several brands offer these and they can be more expensive, but you can grow your system as your skills improve. Simply slot square filters into the holder spaces for easy filter changes. Meanwhile, you can attach a polariser to the front using a ring, meaning you don't have to remove all the other filters to get to your polariser.

TAKE YOUR BEST EVER COMPO

Landscapes are a great genre to practise photography as scenic shots are available everywhere. Here's how to improve your compositions, make them eye-catching, and frame stunning scenes

SITIONS

The landscape genre is a brilliant photographic avenue to explore, and whether you're well versed or are yet to turn your hand to them, now is the perfect time to get out there and expand your portfolio. The UK is full of scenic mountains, forests, gardens, and coasts that are never far away, but many countries are spoilt for choice when it comes to stunning vistas. All these locations make for strong photos whether dappled in sunlight or drenched in a torrential downpour, so you can be sure to get something all year round.

Composition is key to a great landscape, and there will usually be a main element you can place in your frame to make it the focal point you want the viewer be drawn to. Classic examples include a tree, mountain peak, the sun setting over the horizon, or even a lighthouse towering out of the sea. However, it can be a juggling act to position this key point in relation to the other elements in your scene, such as the horizon, sky and lead-in lines. Even with minimalist landscapes you'll have to contend with these, though you'll have fewer elements to position in the shot, so framing will be a little easier if you go down this route.

In this feature we're going to delve deeper into how the placing of these elements can be changed or repositioned to make them work as strongly as possible and achieve a visually arresting and engaging image. We'll be looking at classic approaches to framing your shots – tried and tested methods such as the timeless rule of thirds or golden ratio – but we'll also explain when it's okay to break away from these rules when they simply don't work with the scene in front of you. We'll reveal how different lenses and focal lengths can have a dramatic effect on the overall look of your landscape, as a wide-angle or fisheye lens will deliver a very different look and style compared to, say, a telephoto lens. Let's get started!

CLASSIC COMPOSITIONAL APPROACHES

Improve your landscape compositions with these tried and tested techniques

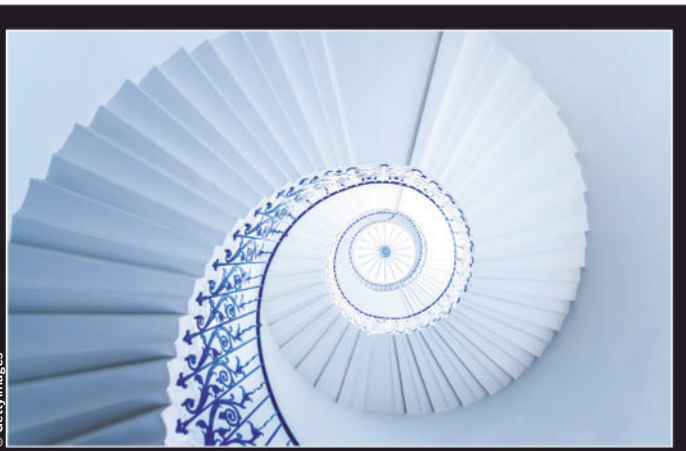
Since the dawn of photography artists have been experimenting with different compositions. Over the past few centuries, however, we've come to accept some basic fundamental rules that you can employ if you're struggling to get a decent composition of the scene in front of you. Many of these compositional tricks have been borrowed from other visual mediums like paintings or drawings, and are seen as easily transferable to photography.

You'll have likely heard of the rule of thirds before, and it is one of the classic compositional approaches that we'll explore in more depth below. The reason you'll have heard of it before, and probably even used it to frame your shots previously, is for good reason – it's a tried and tested method that forces you to position and space your focal points and horizon in a way that makes use of the available space and draws the eye in. An image is typically perceived as more photogenic if the focal point is carefully positioned one third of the way in from one or two sides, giving it more room to breathe compared to if you were to butt it up against the frame edge.

However, as with any rules, they're only guidance, and if you have a creative reason to go against the rules that helps you tell the narrative you want, then be sure to try that approach too.

We'll take a look here at some other lesser-known compositional rules that can help you to improve your framing too, such as the golden ratio, which is better suited to compositions with a central focal point. We'll also look at how the mathematical equation of Fibonacci's spiral crops up time and again in nature and can be used to improve your landscape compositions.

Many of these compositional tricks have been borrowed from other visual mediums



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Fibonacci spiral

The golden or Fibonacci spiral is a mathematical pattern coined by Fibonacci. The amount that this spiral pattern crops up in nature is eerie, such as inside shells, fossils and many plants. Now you're aware of it you probably won't be able to stop seeing it in the real world. You can take advantage of this famous pattern when composing your landscapes, as you may be able to find a lead-in line in your scene that spirals towards your focal point, such as this wonderful spiralling staircase.

© Gettyimages

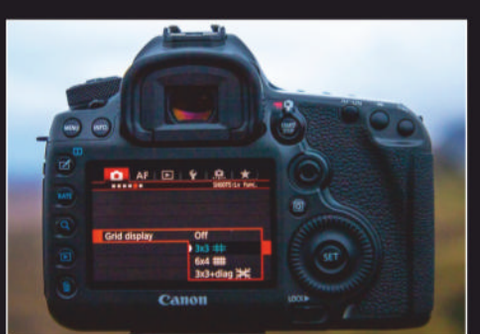
Consider trying a less-is-more approach

It can be useful to challenge yourself by shooting with a more minimalist approach and including only one main subject in the frame. This will help you to get more creative with how you compose the active and dead space around your focal point, like the tree in this image, and also gives the viewer a single obvious focal point to make the composition work more effectively.

© Gettyimages

Rule of thirds

The rule of thirds is the quintessential composition technique that you've no doubt heard of. This is where you divide your frame into nine equal boxes so that you have a 3x3 grid, and then line up your horizon with one of those lines, depending on whether you're shooting in the portrait or landscape orientation. You then position your focal point on one or more of the cross sections of the grid. The reason this works so well is because it gives your image a good amount of breathing space, where your subject or focal point isn't uncomfortably close to the edge of the frame, or right in the middle.



Golden ratio

The golden ratio is similar to the rule of thirds technique, as the frame is divided up into nine boxes. What makes it different from the aforementioned technique is that the golden ratio uses the ratio of 1:1.618, so the boxes aren't equal. The middle horizontal and vertical boxes that form a 'cross' shape are much more squat than those in the corners, and this places the intersecting lines of the grid much more centrally. The effect of this is that the action will appear to happen in the middle of the frame and will help to draw the viewer's eye in towards the heart of your shot.

© Dan Mold

ASPECT RATIO & FOCAL LENGTH

Discover how the size of your camera's sensor and the lens you attach to it can play a big role in the composition of your images

It'd be easy to think that when you take a picture you're completely in control of how the landscape will look in the frame, but in many ways you're locked into the predetermined aspect ratio. For a printed image your aspect ratio would be the proportion of the width compared to the length, so an image 30cm wide by 20cm tall would have an aspect ratio of 3:2 – or 2:3, if it was in portrait orientation.

An aspect ratio of 3:2 is pretty standard in digital photography, though it's actually determined by the design and size of the electronic sensor inside your camera body. Some camera manufacturers, such as Olympus and Panasonic, implement vastly different aspect ratios, as their native images come out at 4:3, so your composition would need a completely different approach compared to using the standard 3:2 ratio.

Although you're tied into the natural framing that your sensor outputs, you can crop in to your preferred aspect ratio in Photoshop, and many cameras also let you crop to change the aspect ratio in-camera, but at the expense of losing pixels and resolution. There isn't a 'correct' aspect ratio to go with, as it's completely down to personal preference, but it's worth being aware of this before splashing out on a new camera.

Another part of photography that you may not think would have too much bearing on your compositions is your choice of lens and the focal length you choose to shoot at. To keep things simple we'll be looking at the focal lengths of a full-frame camera here, though if you're using a cropped sensor like an APS-C you can find out the film equivalent focal length by multiplying them by the crop factor, such as 1.5x on Nikon or Sony's APS bodies, 1.6x on Canon, or 2x on Micro Four Thirds.

When you zoom in more on a scene the perspective changes as the elements in your scene become more compressed, which can have a huge impact on how you compose your shot. Many photographers actually prefer to shoot landscapes with a long telephoto lens for this reason.

Four different aspect ratios

16:9
Many cameras have the ability to shoot in a much wider 16:9 aspect ratio, though this is done most of the time by cropping the sensor and losing resolution. It's a great option if you are after a more cinematic look for your landscape shots, or want to shoot video.

4:3
Olympus and Panasonic have been using a Micro Four Thirds sensor in their camera models since 2008, and it has proven popular with photographers for its slightly more square aspect ratio of 4:3, which also makes better use of the imaging circle that lenses produce.

3:2
This is probably the most common aspect ratio you will find in a digital camera, with many Nikon and Canon camera models adopting full-frame and APS-C sensors that have a width-to-height ratio of 3:2, such as 6000px by 4000px. It is a very popular option.

1:1
This aspect ratio means the length of your picture is equal to its height, making it square. This can be a powerful framing technique as it's not as common as others, although it has become more popular recently because of Instagram's square image format.

Different focal lengths

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Wide-angle and ultra-wide-angle lenses allow you to squeeze in loads of the scene in front of you, and you can include the foreground, midground and background in the frame. You may see some barrel distortion around the edges of the frame as a result, and this usually becomes more apparent the wider you go.

This focal length is often referred to as 'standard' because it has a similar angle of view as the human eye, so images taken at this focal length look natural to us. Focal lengths wider than this are called wide angle, while focal lengths after this, which have a more narrow field of view, are telephoto lenses.

A focal length of 105mm has more zoom than the standard 50mm, so there's more compression between the objects in your frame. When you go above 50mm you'll start to see pincushion distortion creep into the frame, which is where the outside edges appear to be pinched in towards the middle of the frame.

Now we're at the top telephoto end, and magnification is much higher, making distant subjects like wild animals appear larger in the frame. These have large amounts of compression, making it much easier to blur the background when shooting portraits, or to compress the rolling hills of a landscape scene.

LEAD THE EYE IN

Get to grips with lead-in lines in your landscapes

Lead-in lines, often called leading lines, are so-called because they lead the eye in towards a point in your picture. If placed carefully, they can gently guide the viewer's eye towards a specific point in the landscape that you want to be the focus for your shot, such as a tree or structure that will anchor the shot. They're a very handy framing device that you should always consider when shooting your landscapes, and it's often worth just double-checking and having a look around to see if there are any natural formations such as the coastline in this image, or man-made structures like paths or fence posts that can be used to take the eye from the outside of the frame in towards the centre. You'll be surprised what you can use to lead the eye in when you start getting creative.

1 Use lead-in lines to draw the eye in

A lead-in line is a great way of including something in the foreground of your composition that has a line to naturally guide the eye towards your focal point. For this shot of Normanton Church in Rutland Water, we composed it to include the hard edge of the shoreline in the lower half of the frame, which arches round and brings the eye towards our focal point. By recomposing and aiming the camera up a little, we lose the lead-in line and any foreground interest, so the image is much weaker and dominated by the sky.

Shooting landscapes on a tripod

THREE-WAY HEAD
A three-way tripod head is the best choice for landscapes, as it allows you to really take your time and fine-tune your composition on three axes. The MHXPRO-3W X-Pro 3-Way from Manfrotto (pictured here) is fantastic for landscapes, and the arms collapse inwards when not in use to save space.

ORDER OF EXTENSION
Always extend the top leg sections of the tripod first as they're the thickest sections and therefore the sturdiest, moving down to the thinner leg sections after this. If you still need extra height then it's time to extend the centre column – this should be a last resort as it's the wobbliest part of any tripod.

STURDY LEGS
If you're in the market for a tripod be sure to go for a sturdy set of carbon fibre or metal legs. Go for one with individually adjustable leg angles so you can get creative shots closer to the ground. Some even come with reversible centre columns or a short centre column.

TRIPOD FEET
Some tripods have spikes built into the feet that can be revealed by twisting the rubber feet or removing them, though not all do. This can be handy in rocky and icy terrain when your tripod might need more grip, and will stop it moving while you're trying to compose.

2 Make sure the horizon is level – it's a lead-in line too

One of the biggest advantages of digital cameras over their film counterparts is the ability to use the LCD screen to compose and then inspect your shots when you've taken them, rather than wait weeks for them to be developed. Most creative mirrorless or DSLR cameras have a built-in electronic level that you can use, a bit like a bubble level, to make sure your camera isn't tilting down and to ensure that your horizon is straight. Go into Live View mode and you can usually press the Info button to activate it, or find it tucked away in the menu.

x2 © Dan Mold

3 Lead the eye in, not out!

A lead-in line should lead the eye in towards the part of your scene you want the viewer to pay particular attention to, such as a tree, boat, lighthouse, or whatever you determine your focal point to be. They can, however, make your image infinitely weaker when they don't do this and instead lead the eye elsewhere, or out to the edge of the frame. This makes the viewer look away from your image and can disengage them completely, so be sure to watch where your lines are going and ensure they lead to somewhere of importance in the frame.

PLAY WITH PERSPECTIVE

Understand how changing your shooting height and depth of field can impact the perspective

Perspective is a huge part of composition that is often overlooked. It's all to do with what you include in the frame, the spacing between objects or your foreground and background, and also the distance of the camera to the floor. Many of the pictures we take are shot at head height, but simply crouching down or reaching up can change your perspective massively. Many digital cameras now employ articulating LCD screens, making it much easier to compose at these awkward angles, and it's a simple and quick way of giving your shots a completely different look. A simple change of shooting height can also make your subject look more or less dominant by introducing a high or low angle, which alters the mood of the shot.

Including something substantial in the foreground is often described as adding foreground interest. It's a great way of anchoring your image and providing some depth between the front and back areas of your shot. If you do choose to include some foreground interest, it's worth experimenting with how close you get to it to make it larger or smaller in the frame. Many photographers opt to get really close to their foreground interest and use a super-wide-angle lens to change the perspective. You may actually find it easier to compose your landscapes in the portrait orientation when including foreground interest, as this will enable your foreground to take up all of the lower third of your image.

Simply crouching down or reaching up can change your perspective massively

Foreground interest

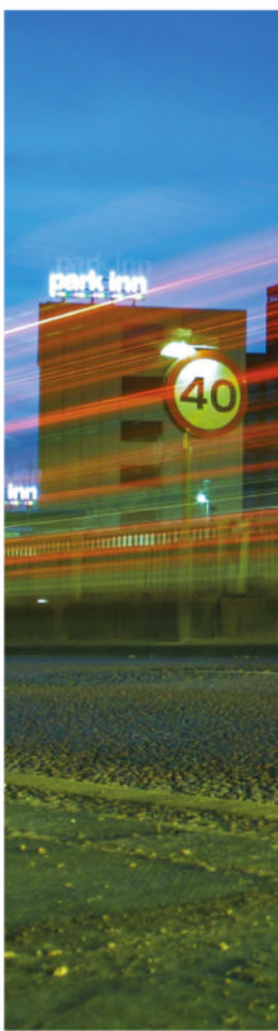
NO FOREGROUND INTEREST
With just a blank grassy field taking up the bottom third of this sunset scene, there's nothing to really anchor this image or help to lead the viewer's eye through to the tree and setting sun far off in the background.

WITH FOREGROUND INTEREST
By moving closer to one of the bails of hay we've given the shot extra depth. We've created a 3D effect to show off the scale off the hay bail in the foreground, leading the eye through to the tree and setting sun behind it in the distance.

PERSPECTIVE 1

Head height

Most shots are taken around head height so they often lack the instant wow factor of images taken with a low or high perspective, as this is a view we're accustomed to seeing. If it's not appropriate to get super low to the ground or high up, it's worth seeing what framing you can get by crouching on one knee, as even this will still offer a new viewpoint for your shot.



3x © Dan Mold

Use depth of field to guide the eye

Using a wide aperture and getting close to the flowers in the foreground has made them the sharp part of the image, also called the focal point. This is where the viewer's eye is naturally drawn to. Although the windmill is out of focus, it's still sharp enough to make out its form and structure, so it's an interesting landscape as the focus doesn't fall where you'd expect it to.

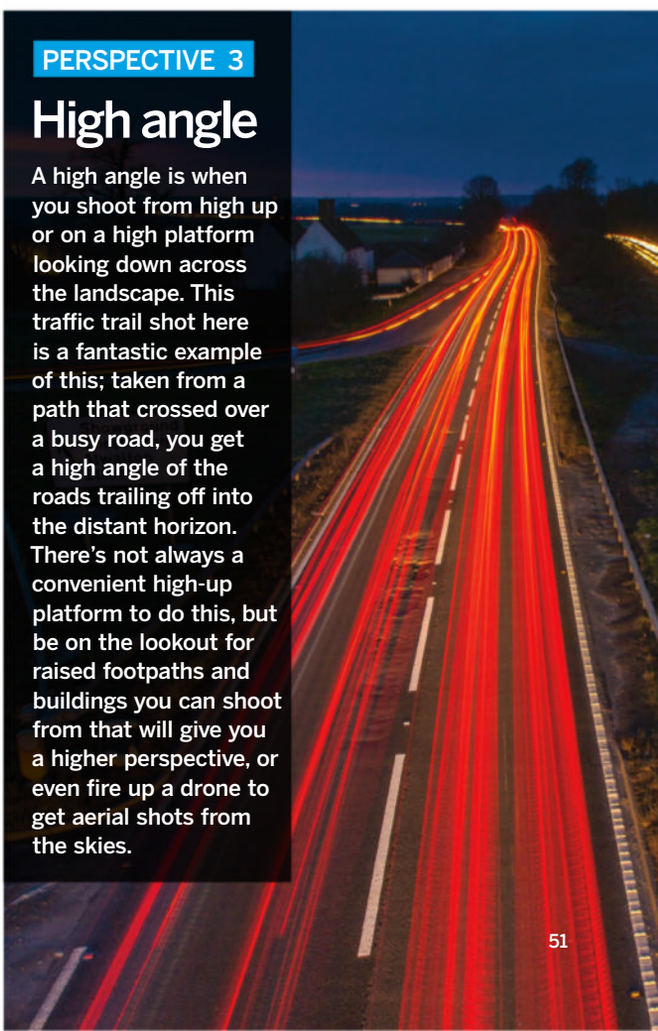
This is perhaps a more classic landscape as it doesn't look like the focus has been misplaced. Instead the focus is firmly centred on the windmill, making it the obvious focal point of the shot. Shooting close to the flowers and using a super-wide aperture has nicely defocused the foreground, gently guiding the eye of the viewer to the windmill in the distance.

In this shot we used a much more narrow aperture of f/22 to expand the zone of sharp focus and get everything in the frame sharp, from the foreground to the background. Typically landscapes are taken at middle to high aperture values to get a good level of sharpness across the vista, but these examples show that a shallow depth of field can be a great way of changing up your compositions too.

PERSPECTIVE 2

Low angle

When you shoot from really low down to the ground it can be useful to employ a miniature tripod, so that you can get as low as possible. Shooting from this low angle gives you a sort of worm's-eye perspective of the world, with everything else towering over and dominating the frame. It's certainly a great way to catch the eye.



PERSPECTIVE 3

High angle

A high angle is when you shoot from high up or on a high platform looking down across the landscape. This traffic trail shot here is a fantastic example of this; taken from a path that crossed over a busy road, you get a high angle of the roads trailing off into the distant horizon. There's not always a convenient high-up platform to do this, but be on the lookout for raised footpaths and buildings you can shoot from that will give you a higher perspective, or even fire up a drone to get aerial shots from the skies.

CREATIVE APPROACHES

Be inspired to play by your own rules!

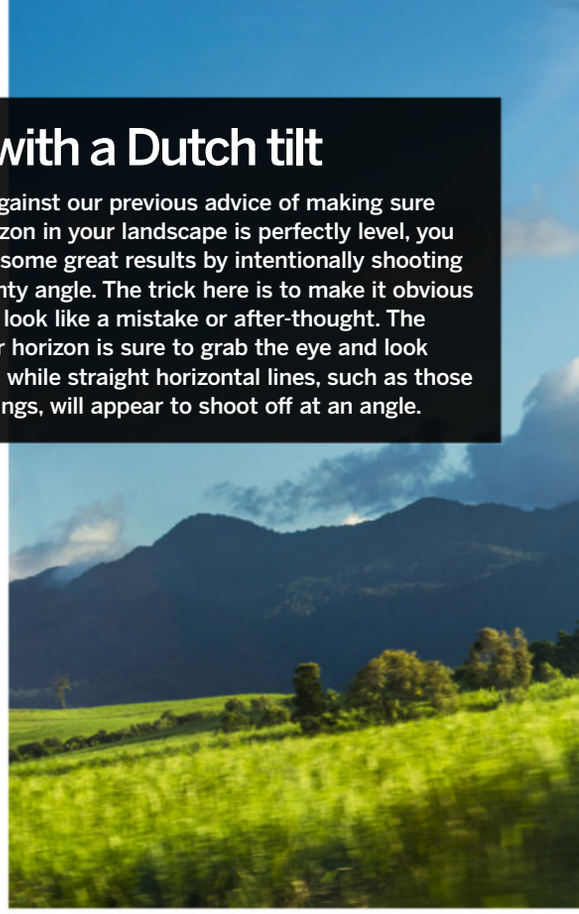
Now that we've covered the classic techniques and all of the technical jargon, it's time to embrace all of this new-found wisdom and decide whether to use a tried and tested technique or something completely different.

You won't always have a scene in front of you that works with the classic methods, or perhaps your creative vision doesn't neatly fit into the rule of thirds grid, but that's okay! Here are some examples to get your creative juices flowing and show you that from time to time it can be worth going off-piste, possibly taking a shot that's even more incredible because of it.

Here we're going to explore the moments and opportunities when it's okay for your horizon to not be perfectly level, to stray away from the rule of thirds, and to embrace the opportunity when there's a chance to use symmetrical framing to position your focal points. Let's also look at how you can make the space in your compositions work harder by transforming so-called 'dead' space that doesn't add anything to the shot into 'active' space, which as the name suggests helps fill out the empty areas around your subject more effectively. Want to break the rules? Here's what you need to know...

Go with a Dutch tilt

Going against our previous advice of making sure the horizon in your landscape is perfectly level, you can get some great results by intentionally shooting at a jaunty angle. The trick here is to make it obvious and not look like a mistake or after-thought. The off-kilter horizon is sure to grab the eye and look striking, while straight horizontal lines, such as those of buildings, will appear to shoot off at an angle.



Use symmetry

While we generally suggest using a compositional method, such as the rule of thirds, to position the various elements of your scene and space them out, symmetry can be a very powerful compositional device because it's not as commonplace, helping a symmetrical image to look more eye-catching. Look out for reflections in glass or water.

© Dan Mold

Dead space

This is when the space isn't being used effectively, so a part of the shot doesn't add anything to the photograph. Dead space can often be the result of a lead-in line or focal point leading the eye out of the frame. It can usually be turned into active space with a composition tweak.

© Dan Mold

Active space

This is where your lead-in lines and focal point face into the negative space in the environment (the space surrounding your focal point and foreground, such as the sky) to keep the viewer's eye in the shot and not directing them out of it.

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Try an odd aspect ratio

With online galleries such as Flickr and 500px absolutely filled with fantastic imagery, it's harder than ever to make your images stand out. So while we've been talking about the classic and traditional ways you can compose your shots, a non-standard aspect ratio can be a good way to give your images an edge to make them even more eye-catching. It's worth playing with a square composition at times too, as this will work perfectly on social media channels like Instagram. We favour putting a few strips of electrical tape over the rear LCD screen protector to give you a square view in Live View, making the composition easier to visualise.

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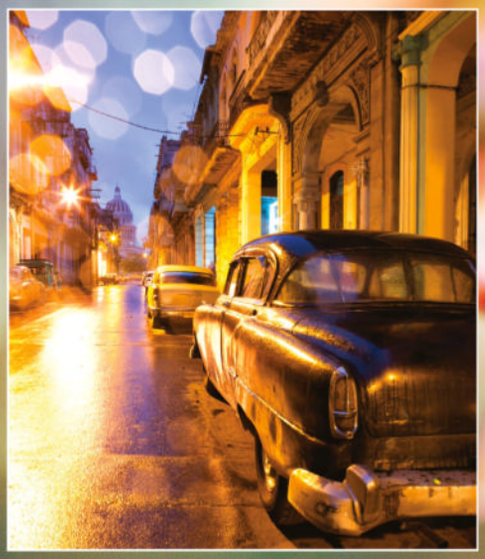
PART 2:
SHARPEN YOUR SKILLS



PRO WAYS TO USE SHUTTER SPEED

Take control of exposure to capture stunning lighting and convey creative motion

Learning to control shutter speed is often the first camera skill we learn when starting out in creative photography. It is the most visually apparent of all the components of the exposure process, as even minor experimentation with lengthening or shortening the duration can have obvious impacts on the way detail is rendered in the final frame. Simply by stretching the exposure out by halving the indicated shutter speed, such as from 1/100 sec to 1/50 sec, we can radically change the tone of a composition by conveying movement instead of freezing the subject in a static frame. This explains why shutter speed is seen more as an artistic choice than a practical one, even though there are basic light control functions in adjusting how long the sensor is exposed to the photons entering through the lens.

Once the essentials of camera control have been mastered and the photographer has begun experimenting with more advanced shutter speed effects, it becomes clear that a universal formula for guaranteeing success for all subjects is difficult to define. While experience does provide insight into how to adapt to the requirements of individual scenes, there is an aspect of trial and error involved. Subject type, lighting conditions, environmental and practical considerations and creative intent all dictate what techniques are most relevant and which settings will deliver the best results.

Here we will discuss how to make the most of both fast and slow shutter speeds, enabling you to choose the ideal exposure duration to control image brightness and capture the drama and character of your subject.

Slow and smooth
Varying the shutter speed can introduce an extra dimension to static subjects, drawing in the viewer through a visualisation of passing time

WORK WITH SLOW SHUTTER SPEEDS

Lengthen exposure duration to smoothen detail and give a sense of motion

The use of longer exposures is perhaps the most well known and popular shutter speed technique. Slowing the shutter speed is, for many photographers, the first technique attempted when learning to take manual control of their camera. While it can become an overused trick, employing a lengthened exposure has the potential to add superior atmosphere to even a relatively plain scene, rendering vegetation as creative streaks and reducing bodies of flowing water to attractive lines of misty blur. These re-imagined features now appear more 'alive' and help to create an active composition. The subject and environment interact in a natural way, appearing more similar to how we see them in real life, with our own eyes.

That being said, once the exposure time passes approximately one second, the amount of movement becomes rather unnatural, portraying objects as we never see them, thereby adding intrigue to a photograph. But regardless of the extremity of the effect we select, the impact is the same – the movement of objects conveys the passage of time, aiding the tone and narrative of an image.

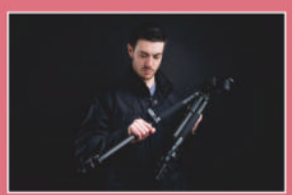
Part of becoming a successful creative photographer is understanding when different techniques and effects are best put to use. The most appropriate conditions for a slow shutter speed are those where there is significant natural movement of scene elements, and where this is central to conveying their place within a scene. A field of wheat, for example, while attractive against a blue sky, can appear oddly uninspiring when static, and dissociated from the rest of the landscape. Lengthening the exposure slightly, so that the crop is shown to be moved by the breeze, injects some natural energy and gives the shot an extra dimension. As only the viewer's visual senses are stimulated by a two-dimensional photo, conveying the wind motion makes it easier for them to imagine being in the scene.

Furthermore, since a blurred subject effectively occupies more of the frame area, it can easily dominate the viewer's attention, which when combined with the often-abstract properties of masked detail, allows us to cover for a lack of strong subject. This is highly useful in minimalist landscapes, where a sparsely populated scene requires an additional visual element to succeed in audience engagement.

Painterly light By keeping the shutter open for longer, colour and light often appear richer and take on a more painterly quality. This suits a wide variety of subjects and lighting conditions

Show movement in landscapes

Introduce some fluidity into an otherwise static scene by selecting the perfect shutter speed



1 Set up your tripod Since we will be using a lengthened exposure duration, a tripod is essential. Scout for a scene where you can get close to the edge of crops or major vegetation that will model the wind for you and help convey movement in the shot.

2 Select camera height Choose a level to position the camera to make more of foreground detail. Objects that appear further away will show less blur, so place the camera just above the height of foreground objects, extending top leg sections first for maximum stability.

3 Use Av mode While we want to control shutter speed, as we are shooting a landscape we also need sufficient depth of field. Aperture Priority mode will help ensure this, while indirectly enabling control of exposure time. Start at f11 and stop down for a longer exposure.

4 Time your shot We need to capture the maximum amount of motion of scene elements. To minimise camera shake, bypass the shutter button. The self-timer makes correct timing difficult, so use a remote release, wait for the breeze and trigger when ready.

5 Adjust exposure time If your shutter speed is not long enough, stop down the aperture slightly or use a low strength ND filter until you are capturing enough movement. If all detail is lost in your moving foreground elements, your shutter speed is too long.

Master intentional camera movement

Richard Beech breaks down how to create abstract long-exposure images

1 Choose your subject Intentionally moving the camera during exposure can open up many creative opportunities. This can be used with any subject, but it really lends itself to landscapes by enabling you to concentrate on lines, form and colour over details, to capture the scene in a unique way.

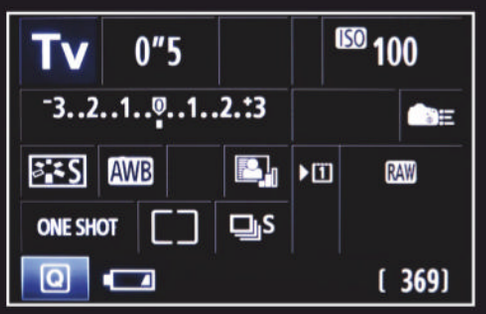
Blurred beauty
Richard Beech says ,"There are no rules to ICM [intentional camera movement]. Start off with basic camera movement at a shutter speed of 1/2 second and then see what works for you"

"Moving the camera during exposure can open up many creative opportunities"

2 Decide on movement The look of your image will depend on speed, direction and smoothness of camera movement. Consider how movement complements a scene. Moving in line with the horizon works well, while moving vertically in line with trees works when shooting woodlands.

3 Consider using a tripod If you wish to create a smoother level of motion blur, you could attach the camera to a tripod in order to control the movement. Loosen up the tripod just enough for the camera to move in your chosen direction and, while taking the shot, pan side to side or up and down.

4 Use Shutter Priority mode Shutter speed is key to achieving the level of camera movement required. It needs to be enough to capture significant motion blur and can be anything from 1/3 sec to multi-second exposures. When starting out, shoot in Shutter Priority, with the shutter set to 1/2 sec.



5 Correct exposure With the need for slower shutter speeds, shooting in low-light conditions is ideal for landscape ICM. But in bright daylight getting the correct exposure may be tough even with the ISO set to its lowest setting and the smallest aperture.

6 Consider a filter Polarising or ND filters can help expose the shot correctly with the required shutter speed. A polariser will also boost colour and minimise glare. Use an additional 2-stop or 4-stop ND filter if the shutter speed needs to be slowed more.

7 Experiment with the technique Try moving the camera diagonally or randomly to create unique results. Rotate the camera 360 degrees to create a spiral effect. Change the focal distance on a zoom lens during exposure to create a zoom effect.

Improve your panning technique

Chris Bray provides six tips for sharper, more dramatic

1 Select your camera settings A good starting exposure is 1/30 sec, so select this in Shutter Priority mode and set Auto ISO. Set your focus mode to AF-C or AI-SERVO so your camera will keep tracking your subject. Enable multiple AF points and set drive mode to continuous.

2 Pick your subject Panning works best when your subject is moving past you rather than towards or away from you – a car driving along a road is a great example. If you're photographing a moving bird or animal, aim to smoothly track their head to keep this sharp.

3 Think about background The background is important for a good panning shot. A uniform background like blue sky won't create any visual movement streaks, so you want a textured background to help reveal the pan. A contrasting colour also helps your subject to stand out.


© Richard Beech

Use abstract colour

Make the most of colourful subjects for images with abstract beauty


© Peter Fenech

With some genres of photography, such as macro, sharpness is everything. The goal with macro is often to capture as much detail as possible, so where this is unachievable many images will fail. Wind is a constant issue with outdoor macro photography. With slow shutter speeds the subject movement can be used for creative effect – increase the shutter speed to reduce the subject to an abstract blur of colour, for artistic images in any conditions.


© Peter Fenech

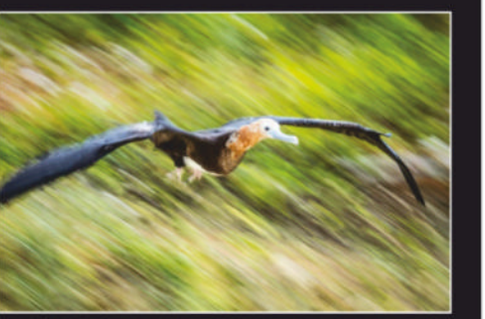
Far left
Contrasting texture
By blending static and moving subjects in a frame, a contrast of sharp detail and blurred forms produces an attractive balance

Left
Shooting modes
While Manual offers total settings control, Shutter Priority mode offers a more streamlined workflow, so you can focus on other solutions while the camera alters exposure parameters

images that effectively convey motion

4 Check your exposure Since you're trying for a slow photo, you may find that the camera can't help but over-expose, especially in bright light, when attempting a slow pan (e.g. 1/10 second). Watch your f-number, which will flash as a warning if your camera can't achieve correct exposure.

5 Embrace the failing light Achieving fast, sharp wildlife photos in fading light is challenging, especially without cranking up your ISO. So failing light is a great time to embrace panning shots. Lower light enables slow shutter speeds for creative movement, without exposure issues or a high ISO.



6 Set up custom modes Panning settings are quite the opposite of those you'd usually be shooting with, and by the time you've set up your camera, the subject has likely gone. I therefore like to save these panning settings into a custom mode, which lets me snap to them instantly.

x6 © Chris Bray

WORK WITH FAST SHUTTER SPEEDS

Capture drama by freezing motion while conveying subject movement

Making use of rapid shutter speeds, where the sensor is exposed to light for only a fraction of a second, has the potential to capture incredible action images. These settings require a very different approach to camera work than longer exposures, however, and it is important to pick the right subject, adjust your composition and ensure a good understanding of how other camera parameters influence photographic success.

A fast shutter speed can be considered as any exposure above 1/500 sec, since this is the baseline value for allowing handheld images at super-telephoto focal lengths while maintaining sharpness. The key characteristic of an image shot with a short exposure is frozen motion, resulting in the resolution of extreme detail in the subject. This has the effect of suggesting to the viewer of the image that this detail is of importance and that they should examine it closely. This factor is often of benefit, but as we will discuss later, it is a fact that can also have negative consequences.

Other than controlling intense lighting by minimising exposure of the sensor, a fast shutter speed is most useful when we need to draw attention to a single action or movement of the subject. This can be seen in many wildlife or sports photography images where the photographer has focussed on the organic motion of their subject within the frame and made this a point of interest in itself. By rendering a usually fast-moving object as static in the composition, we can present it to the audience in a way they never see it in the real world. Detail is often revealed that is usually missed in a quick, fleeting glance, much like a macro lens reveals hidden features in a small subject.

Although this can produce photos with intrigue, there are a number of practical and technical considerations to master before we can attempt truly creative images. The most critical is getting sufficient light into the camera to enable a short exposure duration. Unless shooting in open sunlight in the middle of the day, it will almost always be necessary to increase the sensitivity to a minimum of ISO 800 – a common standard for professional sports photographers. Secondly, the freezing effect may not be appropriate for all areas of the image, requiring an adaptation to our technique to introduce selective sharpness and suggested motion on a local level.

Cheat flash sync speed

Intentionally exceed the camera's maximum flash synchronisation speed for an attractive light falloff

1 Set up wireless system Although your camera and flash may be able to communicate wirelessly, using a third-party trigger may be necessary to enable the maximum flash sync speed to be exceeded. Alternatively use a third-party flashgun. Opt for radio triggers for maximum reliability.

2 Adjust light output Calculate the ideal balance of ambient and artificial light for a perfect exposure. Turn the flash power down if it is too bright and blows highlights on your subject. A setting of 1/8 power is a reliable starting point, and then increase or decrease as required.

3 Select exposure Choose an f-stop that enables you to increase the shutter speed above the maximum flash sync – usually around 1/200 sec. Begin with f8 and adjust as necessary, stopping down if your speed becomes too high. Increase ISO instead if you require shallow depth of field.

4 Increase shutter speed You can do this in Manual, but Shutter Priority mode will allow you to focus on exposure duration while the camera controls the aperture. If the maximum sync speed is 1/200 sec, try around 1/250 sec to start.

5 Take a test shot Shoot an image and observe the effect of darkening at the bottom of the frame, caused by the flash failing to illuminate the shot evenly. The aim is to introduce a subtle effect, so adjust exposure and flash output accordingly.

6 Push to the extremes If the uneven lighting is not clearly visible, try pushing the shutter speed higher to find the maximum setting before the transition from light to dark becomes too sudden. Adjust light position and height to vary the effect.

Choose correct orientation
When exceeding the maximum flash sync, always shoot in landscape format to align shutter movement direction and ensure the gradient is at the bottom of the frame – in portrait orientation the darker area will appear at the side. Crop to a portrait frame later if needed

THE PRO'S ADVICE ON SHUTTER SPEED

Piper Mackay is an expert when choosing the ideal shutter speed for any subject

What areas of photography do you specialise in and why?
I am a wildlife and tribal photographer whose work has been focussed in Africa for the past 16 years. From the moment I stepped foot on the rich red soil, it was magic. Although I have travelled to many other countries on several continents, none bring out the passion as those spanning Africa; both tribes and wildlife. One could say I am an action junkie. I live for spontaneous moments where you have only a second to evaluate the scene, light, background, and click the shutter in success or defeat.

What are the biggest challenges of working with fast shutter speeds?
When working with high shutter speeds, especially in low light, generally when animal movement is optimal, you need fast glass, which is heavy and expensive; you also need a high-quality body that can handle a high ISO. I shoot with two Nikon D850 bodies and a 400mm f/2.8 or 70-200 f/2.8 for wildlife, and change for the 24-70 f/2.8 for tribes. To keep up a fast shutter in low light, one is always fighting against depth of field and a high ISO.

How do you convey movement/energy in your images even when subjects are frozen by a short exposure?
Perspective can make a huge difference when you're using a high shutter speed but want to convey motion in a still image. Understanding animal behaviour and movement is critical when positioning and clicking the shutter in rhythm with the motion. The goal is to make the viewer feel like they are moving through the frame with the subject.

Do you prefer shooting with shorter or longer exposures?
I have no preference of using fast versus slow shutter speeds. When I drive upon a scene, I quickly evaluate the action, light and background before deciding what setting will create the most powerful and successful outcome. Although working with slow shutter speeds is generally fun and more creative, it can also be a lot riskier if you have not spent many hours practising the technique. Therefore, I generally follow the philosophy of take the safe shot and then look to push the creative boundaries.

"Make the viewer feel like they are moving through the frame with the subject"

Above
Implied motion
Choice and strength of subject and an exaggerated perspective help to place frozen areas in context

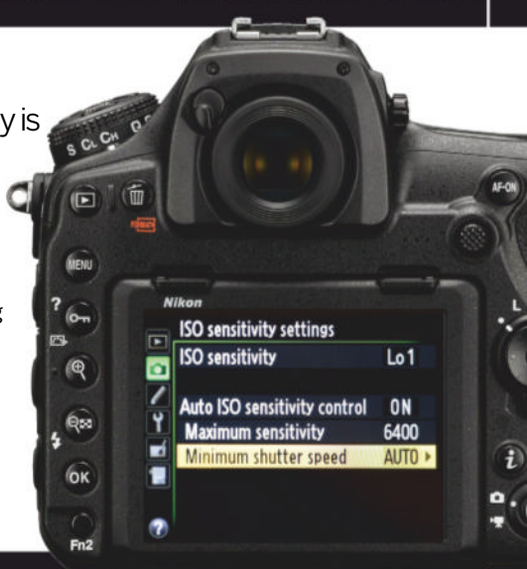
Far left
Larger than life
Look to capture large subject movements to ensure the action appears considered

Left
Composition choice
Placement in the composition is of critical importance to maintain viewer engagement

Engage auto ISO

Use this helpful feature when your priority is to guarantee a sufficient shutter speed

Continuously changing your ISO setting is laborious, time-consuming and can result in missed image opportunities in fast-paced conditions. More seriously, it is possible to forget to adjust the sensitivity between shots, producing images that have been shot at an insufficiently fast shutter speed but are only slightly blurred, meaning you fail to notice a lack of sharpness until the shoot is over. Auto ISO allows you to set a minimum shutter speed to maintain, while the camera adjusts the ISO continuously to match – an essential tool in sports and wildlife imaging.



SHOOTING SKILLS

FREEZE THE ACTION

Refresh your settings knowledge to capture fast-moving subjects with precise sharpness

One of the most challenging tasks in photography is to freeze a fast-moving subject in motion, such as a racing car, a bird in flight or a plane at an air show. Taking photos in automatic mode (A) can be frustrating as the camera's settings need adjustments in exposure and focus. This means that some shots may be usable and sharp, but many will lack precision. To capture those dynamic and dramatic moments, technical knowledge and practice are the keys to success. Here, the exposure triangle comes into play, which consists of three elements: shutter speed, aperture, and ISO. These settings all have an impact on each other.

For action shots, the priority is to select a fast shutter speed, such as 1/1,000 sec, to freeze the subject. However, this also means that less light has time to enter the sensor, resulting in a darker image. You might think that working with an open aperture (low f-stop number) would solve this problem as it enhances the brightness. The problem is that the more open the lens, the shallower the depth of field and therefore the narrower the focus area. This makes it even harder to keep the subject in focus, especially if it is moving unpredictably. Raising the ISO for brightness seems logical, but extreme values cause noise and grain, reducing the image quality in both sharpness and clarity.

By understanding the exposure triangle and by experimenting with different settings, you will learn how to freeze the moment. Fortunately, the camera's automatic modes and focus assistance can help guide you.

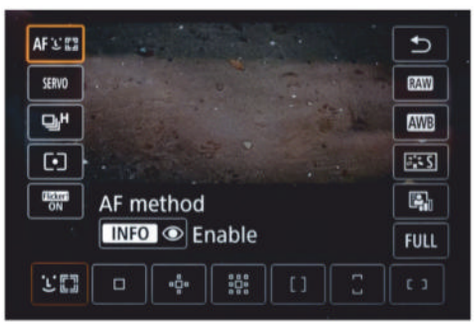
Insert
Blurred subject
When photographing this rapidly moving plane, the shutter speed has been set too slow, resulting in motion blur and poor image quality

Main
Captivating action
By prioritising the ideal shutter speed and activating appropriate settings, the action was captured in sharp focus, revealing even small details to the viewer

1 Choose an optic To get up close to your subject and for extra flexibility in framing, a zoom lens with a focal length of 200mm or above is probably your best bet. However, these lenses can be expensive, so renting a zoom lens for a special occasion could be a more cost-effective option to consider.

2 Clean the lens We are relying on the autofocus settings to keep up with the speed of the moving subject, so it is important to clean your lens first. This way you ensure that the AF can work accurately and won't be distracted by dirt or spots on the lens. Use a suitable microfibre cloth to clean the lens.

3 Prioritise shutter speed Select the Shutter Priority mode and lock the shutter speed. Now the camera calculates an appropriate aperture and ISO value to ensure correct exposure. After doing some test shots, select M mode and experiment to put your exposure triangle knowledge into practice.



4 Set the focus To maximise your chances of getting sharp results, shoot in Servo autofocus mode. This setting tracks the subject as it moves across the frame. By selecting Continuous/Burst shooting mode, the camera takes multiple consecutive shots when you hold the shutter pressed down.

5 Control exposure When shooting in bright conditions, for example, if your subject is directly against a bright sky, using an ND filter helps to control the exposure. A filter works like sunglasses for your lens and reduces the amount of light while improving dynamic range and detail.

6 Track the subject Now it is time to capture a fast-moving subject. Get into position with your legs slightly apart and keep your attention on the subject, panning along with the movement. Take some test shots and review the results. Change your point of view occasionally to add variety to your shots.

How low can you go?
Shooting with your lens at maximum aperture ensures a faster shutter speed – handy when taking handheld shots in low light

10 PRO WAYS TO USE APERTURE

Lens aperture is so much more than a hole in your lens that lets light in – it's also one of the most creative camera controls at your disposal

The main technical aspect of photography is capturing a well-exposed image, though given the levels of technology digital cameras now boast, it's not exactly difficult these days. But the two main controls you use to make that exposure happen – the lens aperture and shutter speed – also perform other tasks that have a big influence on the success of every photo you take, so understanding what they do and how they do it is crucial.

The main role of the lens aperture is to control the flow of light through the lens to the camera's sensor, which it does using a series of f-numbers – the smaller the aperture, the bigger the f-number (f22 for example) and the less light is admitted and vice versa. But those f-numbers also control how much, or how little, of the scene or subject will be recorded in focus, so when you use your lens apertures creatively as well as technically you can achieve some amazingly creative effects.

1 USE WIDE APERTURES FOR PORTRAITS

Draw focus onto your subject's eyes

Short telephoto lenses in the 85-135mm range are said to be the best choice for traditional portraiture because they compress perspective a little, which flatters facial features. An additional benefit is that they also give shallow depth of field (DOF) at wide apertures, such as f4 or f2.8, so you can throw the background out of focus.

If you want to do that but also record all of your subject's face in sharp focus, stick to an aperture of f5.6 and focus on your subject's eyes. If you use a wider aperture, depth of field will be reduced to the point where you may find that parts of your subject's face aren't sharply focussed – such as the tip of their nose, chin and forehead. This effect can work well though, as it focusses attention on your subject's eyes – especially if you shoot with your lens at maximum aperture.

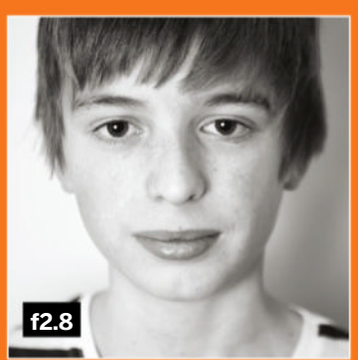
Try shooting portraits with a telezoom at f2.8 or f4, or a 50mm prime lens at f1.8. If you do this, make sure your subject is square on to the camera so that when you focus on one eye the other one is also sharp, otherwise it will look odd. Alternatively, shoot from an angle so one eye is closer to the camera than the other, and focus on the nearest eye.

Left
Focus attention
A person's eyes are 'windows on their soul', so when shooting portraits you need to ensure they're pin-sharp

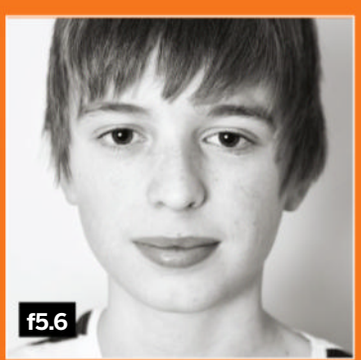
Apertures and portraiture

Examine how different f-stops affect your subject

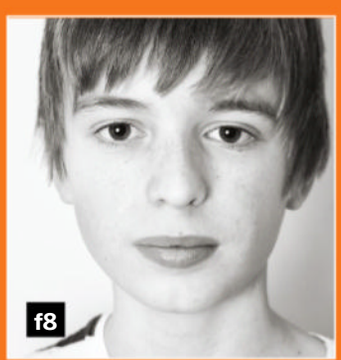
This set of images shows how the feel of a portrait changes as you stop the lens down to increase depth of field. They were all taken with a 24-70mm zoom at 70mm on a full-frame DSLR, and the lens was focussed on the subject's eyes.



Sharp & soft The eyes are sharply focussed but everything else gradually blurs away. This adds a gentle softness and draws attention to the subject's eyes.

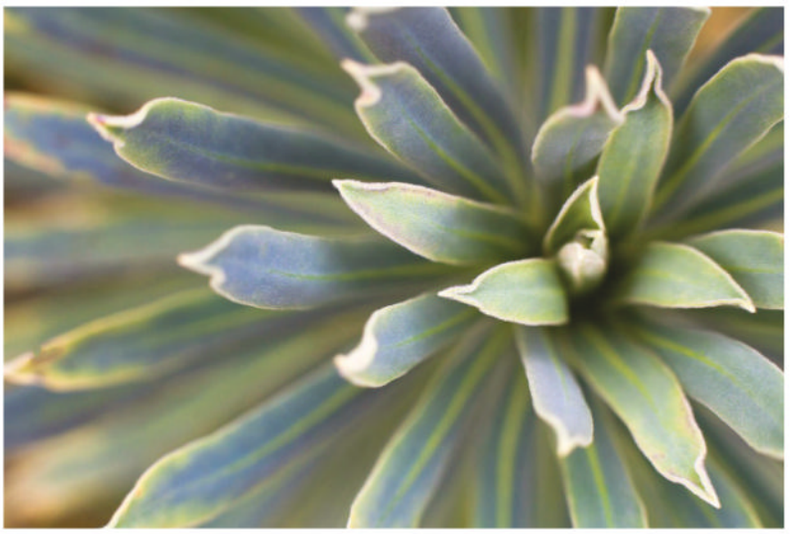


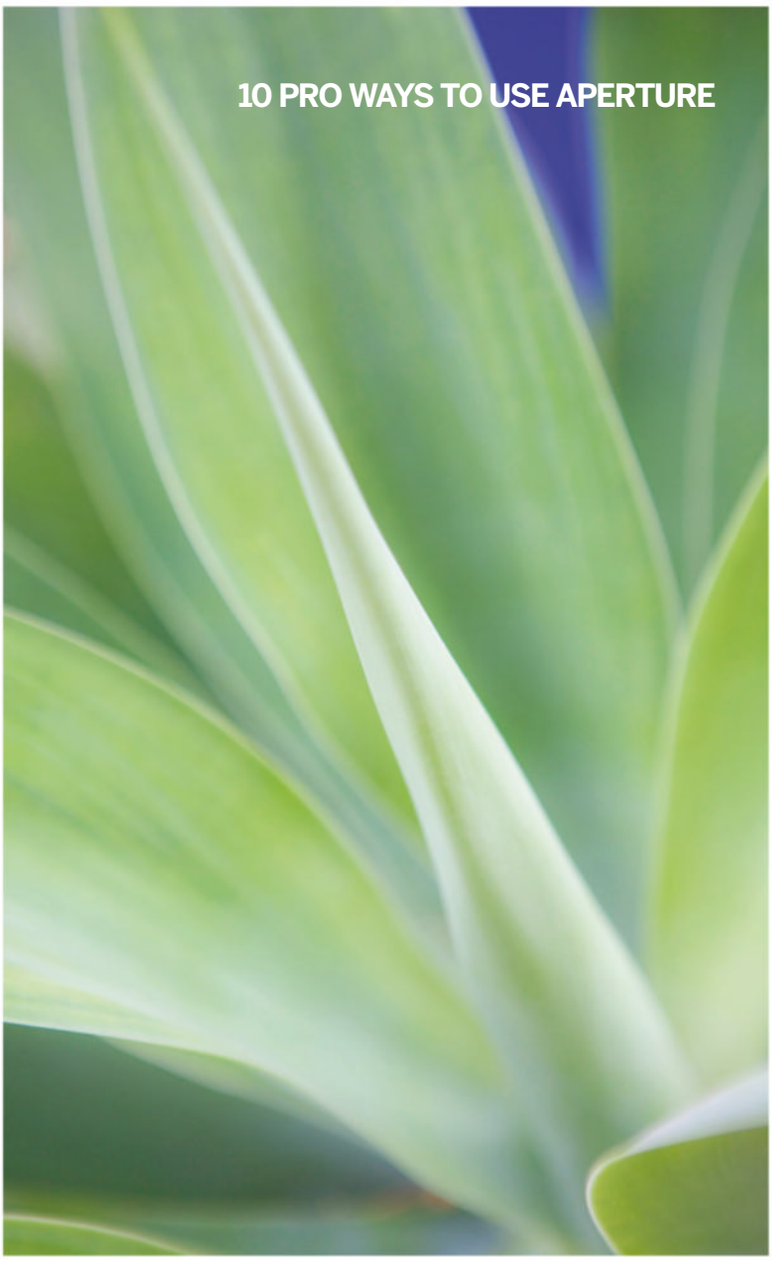
Getting sharper The eyes here are sharply focussed along with much of the subject's face and forehead, but the ears, neck and shoulders are still out of focus.



Less blur Here you can see that the whole of the subject's face is sharply focussed, while the ears, neck and shoulders are less blurred.

Too sharp? The whole of the subject's head is sharply focussed, and it looks much crisper – but it lacks character compared to the f2.8 shot.





Top
Repeat after me
Looks for patterns in plants and flowers when shooting close-ups

Above
Selective focus
Depth of field is down to just a few millimetres in this macro shot

Below
Love hearts
Wide apertures add an arty feel to setup shots like this sweetie still-life

Right
Abstract nature
Minimal depth of field gives macro shots an abstract look

2 SHOOT MACRO SHOTS WITH MINIMAL DEPTH OF FIELD

Get creative with depth of field for close-up work

One of the factors that affects depth of field is the distance the lens is focussed at. The closer the distance is to the lens, the less DOF you get for any lens focal length or aperture, while the further the focussing distance is, the more DOF you get for any lens or aperture.

This effect is seen at its most extreme when shooting close-up and macro images, as the camera-to-subject distance may only be a few centimetres. Once you get down to these small focussing distances, DOF is severely reduced, to the point that even with your lens stopped all the way down to f22 or f32, you'll find that much of your subject is out of focus.

> "The closer the distance is to the lens, the less DOF you get"

Go the other way by opening up the aperture, and DOF is virtually non-existent. Try shooting with a macro zoom wide open and focussed as close as it will go. Even better, do the same with a pukka macro lens that will give you 1:2 or 1:1 reproduction. Focus on an important part of your subject and let everything else blur away. It can be stunning, especially on colourful subjects like flowers.

3 HANDHOLD IN LOW LIGHT

Open up your aperture as wide as it will go, hike-up the ISO and leave your tripod at home

Wide apertures are a miracle in low light, especially when you need to shoot handheld, because they allow you to keep the shutter speed as fast as possible to reduce the risk of camera shake or subject movement.

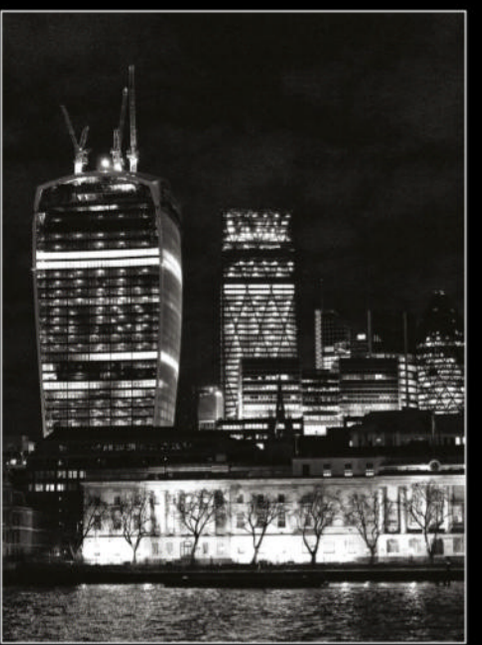
The type of lens you have can make a big difference. A 50mm prime lens is brilliant in low light – as well as being small and light, it also has a super-wide maximum aperture of f1.8, f1.4 or even f1.2. So, for example, if your zoom has a maximum aperture of f4 and the fastest shutter speed you can manage is 1/4sec, a 50mm lens at f1.4 in the same situation would give you a shutter speed of 1/30sec, which is fast enough to shoot handheld. Add to this the fact that the latest digital cameras offer fantastic image quality at ISO 3200, 6400 or beyond, and with a fast lens at its widest aperture you can take handheld shots in situations that used to be completely out of reach.

1 Set the ISO Adjust the ISO to what you think is a suitable level. The 'faster' your lens is, the lower the ISO, so if you're using a 50mm f1.8 wide open, you can use a lower ISO than if you're using a 24-70mm f4 zoom, and maintain a decent shutter speed.

2 Take a test shot This shot suffers from camera shake because the shutter speed with the ISO set to 3200 was too slow for safe handholding – just 1/15sec at f2.8. Increasing the ISO to 25600 increases the shutter speed to 1/125sec, which gets rid of camera shake.

3 Adopt a stable stance This reduces the risk of camera shake when handholding in low light. Stand with your back straight, feet slightly apart and elbows tucked into your side. Cup the lens with your left hand, then squeeze the shutter release rather than jabbing it.

4 Retake the shot With a higher ISO and faster shutter speed, the shot is nice and sharp. It's noticeably grainy due to the high ISO noise, but not too bad considering that it was taken at ISO 25600! If you like grainy images then you'll be happy with this.



5 Convert to black & white Shots taken at an extreme ISO often don't work in colour due to noise and poor colour rendition. Converting to black & white will solve this problem and produce stark, gritty images. Silver Efex Pro was used for this shot.

Left
Keep it simple
Differential focus draws your eye to the main subject and adds a gentle softness

Above
Blurred vision
Using a telezoom at its widest aperture ensures your main subject stands out boldly

Below
In the frame
These out-of-focus branches provide an effective frame and emphasise the building

4 DIFFERENTIAL FOCUSSING

Create stark 3D elements in a scene

Depth of field is reduced as focal length increases, so a 200mm lens at f4 will give you less DOF than a 100mm lens at f4.

By using a telephoto or telezoom at its widest aperture, you can experiment with the differential focussing technique, where you focus the lens on an element in a scene but let the rest fall out of focus. This makes the sharply focussed element stand out in stark 3D. The longer the focal length and the wider the aperture, the more obvious the effect is.

Differential focussing works well on all kinds of subjects, from landscapes and architecture to still life and people, and a 70-200mm or 70-300mm zoom at the long end will produce strong results. You need to focus the lens carefully on your chosen point, so if you're using AF, either focus lock while you recompose or move the AF point to where you need it. You can also emphasise the effect by including elements in the scene that are closer to you than the point you've focussed on, so these elements will be thrown completely out of focus as well as the elements further away.

5 USE SMALL APERTURES TO RECORD MOTION

Add a sense of action to shots of moving subjects

You may think that apertures are only about depth of field, but they can also be used to reduce or increase the amount of motion you record. The more you stop the aperture down, the slower the shutter speed gets to maintain correct exposure, and the more you open up the aperture, the faster shutter speed gets.

For example, let's say you're shooting a waterfall at f8 and you're getting a shutter speed of 1/30sec. You're not going to record much movement in the water at 1/30sec, but if you stop the lens down to f16, the shutter speed will drop to 1/8sec and you'll see a big difference. This approach can also be used to greater effect when using a 10-stop or similar ND filter to record motion in a scene – if you're getting 30 seconds at f8, you'll get one minute at f11 and two minutes at f16.

The comparison set of images here shows what a difference changing the lens aperture can make when you want to record motion. With the lens wide open at f2.8 there is some blurring in the water, but not enough. As the lens is stopped down, the shutter speed becomes slower and the degree of motion in the waterfall increases, until at f32 a two-second exposure turns the water silky smooth.

"What a difference changing the lens aperture can make"

Below
Zoomburst effect
This striking image was created by zooming the lens through its focal length range while shooting with a slow shutter speed

Right
Sway and swirl
Different apertures can have a dramatic effect on motion – it can affect more than just an image's depth of field

Right below
Flowing water
Stopping down the aperture will help you capture a sense of motion that brings water scenes alive

Left
Sharpness adds strength
Pin-sharp images are packed with fine detail and depth

Above
Find the sweet spot
Most lenses give their sharpest results at an aperture of f8 or f11

Top
It's in the detail
Shoot at your lens's optimum aperture to maximise image sharpness

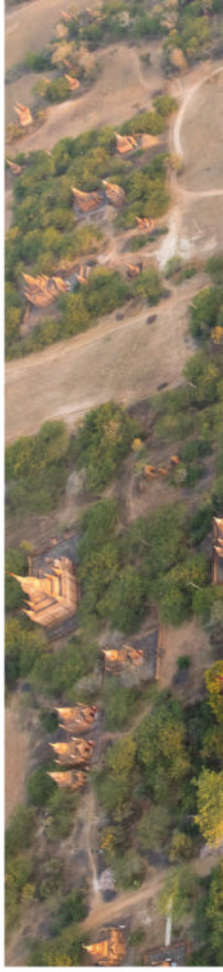
6 OPTIMISE IMAGE QUALITY

Find your setup's sweet spot to achieve pin-sharp shots

Used wide open or stopped right down, almost all lenses suffer from aberrations that degrade image quality. Diffraction is the most common. It's caused when some of the wavelengths of light are bent or diffracted as they pass through the hole in the lens created by the aperture blades, resulting in a loss of sharpness. Ultra-wide-angle lenses tend to be affected more than telephotos, while zooms are affected more than prime lenses.

Diffraction is often worse at small apertures because it's the edges of the aperture blades that cause light to diffract, and the smaller the aperture is, the greater the proportion of the total light wavelengths being diffracted. At wide apertures, diffraction is less because the proportion of diffracted light compared to non-diffracted light is smaller.

Most lenses tend to give their sharpest results at f8 or f11, so where possible you should avoid stopping down beyond that. This 'sweet spot' does vary from lens to lens, so if you're keen to achieve optimum image quality, it's worth testing your lenses by tripod-mounting the camera and shooting the same scene at all apertures, in 1/3 f-stop increments, then comparing the results at 100% enlargement. Using the hyperfocal focussing technique (p77) also means you can maximise DOF at the optimum aperture.



7 MAXIMISE DEPTH OF FIELD

Stop your lenses down to small apertures and capture images that are sharply focussed from front to back

Achieving extensive depth of field requires the use of small lens apertures, but the more you stop down, the more image quality can be affected due to diffraction.

The solution is to use a technique known as hyperfocal focussing, which allows you to maximise depth of field for any aperture/focal length combination by focussing the lens on a specific distance – the hyperfocal distance. That distance can be calculated using a simple formula – you can even buy apps for smartphones that do it for you – but to save you time and hassle, we've included hyperfocal distance charts here for full-frame DSLRs, and 1.5x and 1.6x crop sensors.

To use the chart, find the focal length you're using along the top, the aperture (f-number) you want to use down the side, then read across to find the hyperfocal distance. All you do then is focus your lens on that distance, and depth of field will extend from half the hyperfocal distance to infinity.

Hyperfocal focussing isn't really doable when you use telephoto lenses, as the hyperfocal distances are great and estimating them is almost impossible. However, with wide-angle lenses this technique is very useful, because the hyperfocal distances are shorter and you can achieve extensive depth of field without having to stop your lens right down to f16 or f22 – which helps to optimise image quality and also avoid the shutter speed from being too slow.

1. For full-frame/35mm SLRs

	16mm	20mm	24mm	28mm	35mm	50mm	100mm	135mm	200mm	300mm
f/2.8	2.9m	4.5m	6.4m	8.8m	13.7m	28m	111m	203m	446m	1004m
f/4.0	2.0m	3.1m	4.5m	6.1m	9.6m	19.5m	78m	142m	312.5m	703m
f/5.6	1.4m	2.2m	3.2m	4.4m	6.8m	14m	55.8m	101.7m	223.2m	502m
f/8.0	1.0m	1.6m	2.3m	3.1m	4.8m	9.8m	39m	71m	156.3m	351m
f/11	0.7m	1.1m	1.6m	2.2m	3.5m	7.1m	28.4m	51.8m	113.6m	255m
f/16	0.5m	0.8m	1.1m	1.5m	2.4m	4.9m	19.5m	35.6m	78.1m	175m
f/22	0.4m	0.6m	0.8m	1.1m	1.7m	3.6m	14.2m	25.9m	56.8m	128m
f/32	0.3m	0.4m	0.6m	0.8m	1.2m	2.4m	9.8m	17.8m	39.1m	88m

"The solution is to use hyperfocal focussing, which allows you to maximise depth of field for any aperture/focal length combination"

Left
Front-to-back capture
Maximise the depth of field to help create a strong impression of distance and depth in your images

Above left
In the Namib dunes
Hyperfocal focussing with a wide-angle lens will give you depth of field from a few centimetres to infinity

Above
Getting a bird's eye view
When everything you wish to include in your shot is a long way off, a wide aperture will give you enough depth of field

2. For digital SLRs with a crop factor of 1.5x such as Nikon

	10mm	12mm	16mm	20mm	24mm	28mm	35mm	50mm	100mm	200mm
f/2.8	2.9m	4.5m	6.4m	8.8m	13.7m	28m	111m	203m	446m	1004m
f/4.0	2.0m	3.1m	4.5m	6.1m	9.6m	19.5m	78m	142m	312.5m	703m
f/5.6	1.4m	2.2m	3.2m	4.4m	6.8m	14m	55.8m	101.7m	223.2m	502m
f/8.0	1.0m	1.6m	2.3m	3.1m	4.8m	9.8m	39m	71m	156.3m	351m

3. For digital SLRs with a crop factor of 1.6x such as Canon

	10mm	12mm	16mm	20mm	24mm	28mm	35mm	50mm	100mm	200mm
f/2.8	1.8m	2.7m	4.6m	7m	10m	14m	22m	45m	179m	715m
f/4.0	1.3m	1.9m	3.2m	5m	7m	10m	15m	31m	125m	500m
f/5.6	0.9m	1.4m	2.3m	3.5m	5m	7m	11m	22m	89m	357m
f/8.0	0.7m	1.0m	1.6m	2.5m	3.5m	5m	8m	16m	63m	250m
f/11	0.5m	0.7m	1.2m	1.8m	2.5m	3.5m	6m	11m	45m	181m
f/16	0.35m	0.5m	0.8m	1.3m	1.8m	2.5m	4m	8m	31m	125m
f/22	0.25m	0.35m	0.6m	0.9m	1.3m	1.8m	3m	6m	23m	91m
f/32	0.17m	0.25m	0.4m	0.6m	0.9m	1.3m	2m	4m	16m	63m

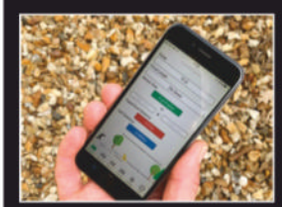
Hyperfocal focussing

Here's how to maximise depth of field using the hyperfocal focussing technique

1 Out of focus When you look through the viewfinder of a DSLR, most of the scene is out of focus as the lens is at its maximum aperture, so the DOF you can see is what you'd get if you shot at that aperture.

2 Stop down It's tempting to just stop the lens right down to f22, as with a wide-angle lens this is virtually guaranteed to record the whole scene in sharp focus. But doing so will degrade image quality.

3 F11 A much better option is to select a mid-range aperture such as f11, which will produce a sharper image as there will be less diffraction, then use hyperfocal focussing to maximise depth of field.



4 Chart Refer to a depth of field chart or app on your smartphone to see what the hyperfocal distance will be for the lens and aperture you're using – here you can see it's 1.77m for a 24mm lens set to f11.

5 Hyperfocal distance Focus the lens manually on the hyperfocal distance, and depth of then field will extend from half the hyperfocal distance (in this example 0.88m) to infinity, giving you front-to-back sharpness.

8 WIDE APERTURE LANDSCAPES

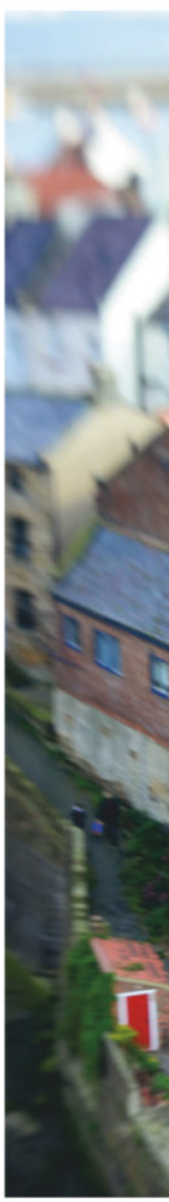
Get great landscape shots when detail is far away by shooting wide open

The very concept of using a wide aperture when shooting landscapes may seem alien, because usually you want to record a scene in sharp focus from front to back, and a wide aperture is unlikely to do that. Or is it?

Actually, in some situations it will. You only need lots of depth of field when the nearest point in the scene is close to the camera. But sometimes you'll find that everything you're including in a shot is far away – at infinity – which means you don't need any depth of field at all.

Taking aerial shots is a good example. You can shoot with your lens wide open, which you may need to do to keep the shutter speed high enough to counteract the fact that you're moving and still record everything in sharp focus. The same applies if you're on a hill or mountain and shooting the valley below, or capturing the urban landscape from a high viewpoint such as the top of a skyscraper.

The wider the aperture, the faster the shutter speed. It's an important consideration when you're handholding the camera in low light, or if you and the camera are moving – which is the case when shooting aerial images from a plane, helicopter or, to a lesser extent, a hot air balloon.



Left
Aerial view
Setting the maximum aperture helps to keep the shutter speed high when shooting from an aircraft

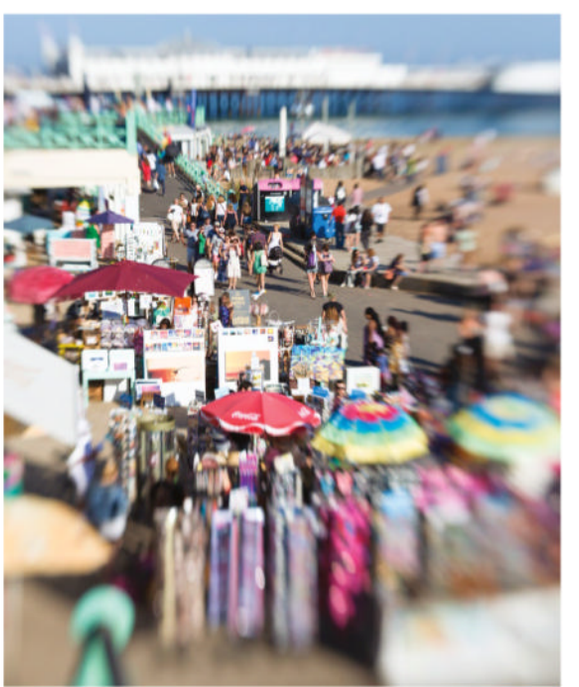
Far left
Take to the sky
This aerial shot was taken from a helicopter, with the lens at its widest aperture and focussed on infinity

9 EXPERIMENT WITH DIORAMA EFFECTS

Minimise depth of field for miniature faking

Also known as miniature faking, the idea behind this is that you photograph life-size subjects and scenes but make them appear to be models or miniatures.

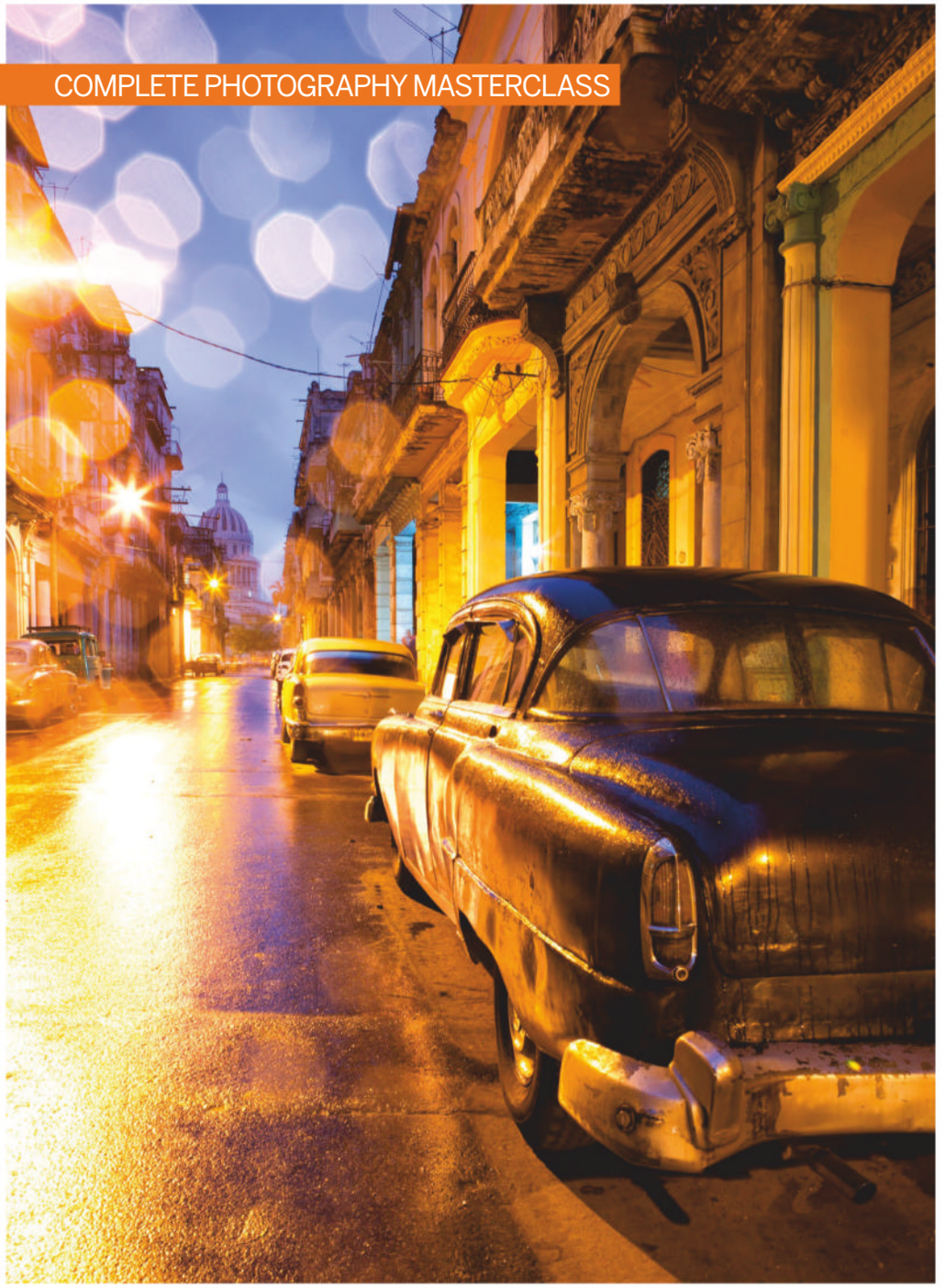
The easiest way to achieve this is by shooting with your lens at its widest aperture, so depth of field is minimised. Doing so throws much of the subject or scene out of focus, which creates the illusion that it has been photographed from close range so must be small. Lenses with a maximum aperture of f2.8 or wider will give a decent effect. However, tilt/shift lenses are far better, as you can shoot wide open with reverse tilt applied to reduce DOF to practically nothing. A cheaper alternative is to use a Lensbaby, which only has a small 'sweet spot' while everything else is thrown out of focus.

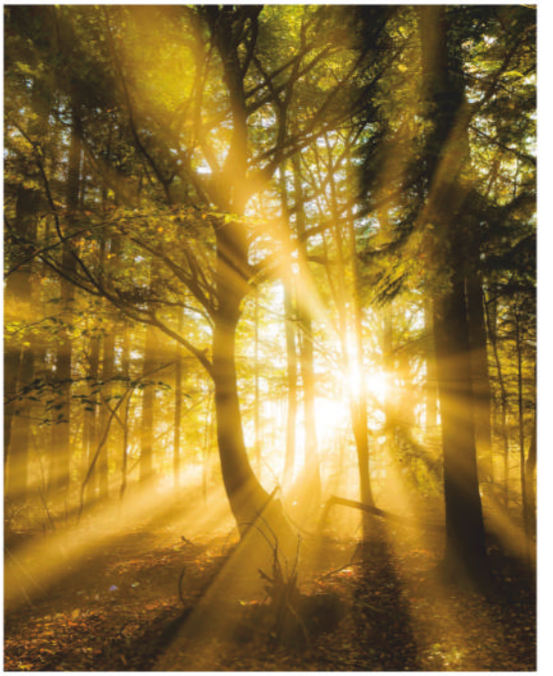


Left
By the seaside
Use Photoshop to create miniature effects – select an area, invert it then add Radial Blur

Middle left
Model village
You can create diorama effects quickly and easily using a Lensbaby attachment

Far left
Fun of the fair
Selective focussing makes life-size subjects look like miniature versions of the real thing





Top
Let there be light
Sunlight bursting through misty woodland created this stunning starburst effect

Above
Setting sun
Stop your lens down to f16 or f22 and turn the sun and other bright highlights into twinkling stars

Left
Happy accident
The highlights in this twilight sky were created by raindrops on the lens that caused flare

10 USE STARBURSTS AND BOKEH

Add a sparkle to the highlights in your images

If you have been around for a while, you'll probably remember a time when using filter effects were all the rage. The good-old starburst was one of them – a filter that turned every point source of light in a scene into a twinkling star.

The good news is you don't actually need a filter to create starburst effects – you can do it using your lens aperture. All you need to do is include a really bright light source in the shot – the sun is the best one – then partially obscure it behind a feature in the scene so it's not too intense, and fire away. Small apertures work best – f11, f16, f22 – as they produce more pronounced lines in the star. Misty weather can help to create and emphasise starburst effects too. Head into woodland on a misty morning and capture the sun rising and shining through the trees. Even wide apertures, such as f5.6, will give you striking starburst if the conditions are right.

Opening your aperture right up allows you to experiment with bokeh effects. The word 'bokeh' comes from the Japanese for 'blur' and basically refers to the way out-of-focus highlights are rendered in an image. To get good bokeh you need to shoot at apertures of f2.8 or wider. A prime 50mm is ideal, or use a prime macro lens or a fast telezoom such as a 70-200mm f2.8. You also need a background that contains specular highlights – sun shining through trees, streetlights at night, sunlight reflecting on water, that kind of thing.

Lights in the foreground works well too – try holding a bunch of fairy lights in front of the lens and shooting through them.

UNDERSTAND COLOUR

Get to grips with colour theory for harmonious images with incredible impact

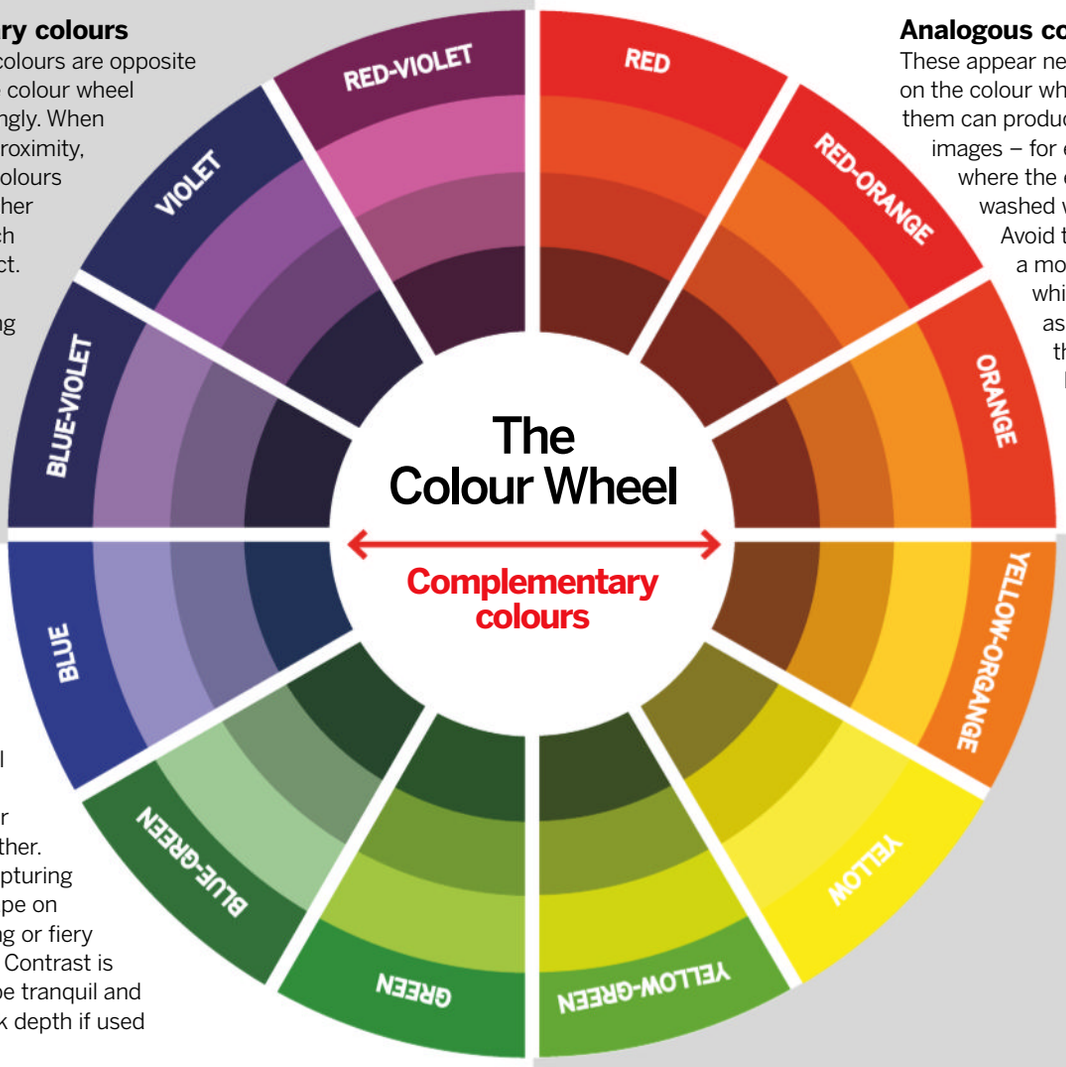
Colour is a critical element of a successful image. Some colours work well together while others can create uncomfortable clashes. Even when creating black and white images, the colours present in the scene affect the tones in your photos, impacting the contrast. It's therefore important to make sense of how you can arrange colours to maximise the depth in your compositions and ensure your viewers connect with your main subject.

Complementary colours

Complementary colours are opposite each other on the colour wheel and contrast strongly. When present in close proximity, complementary colours will cause each other to stand out, which can provide impact. This is especially useful for providing colour depth, such as cooler shadows to contrast with warm sky tones.

Analogous colours

These appear next to each other on the colour wheel, and overusing them can produce flat-looking images – for example at sunset, where the entire image is washed with a warm bias. Avoid these by selecting a more 'intermediate' white balance, such as Daylight, rather than Shade or Fluorescent, to effectively push a colour theme.

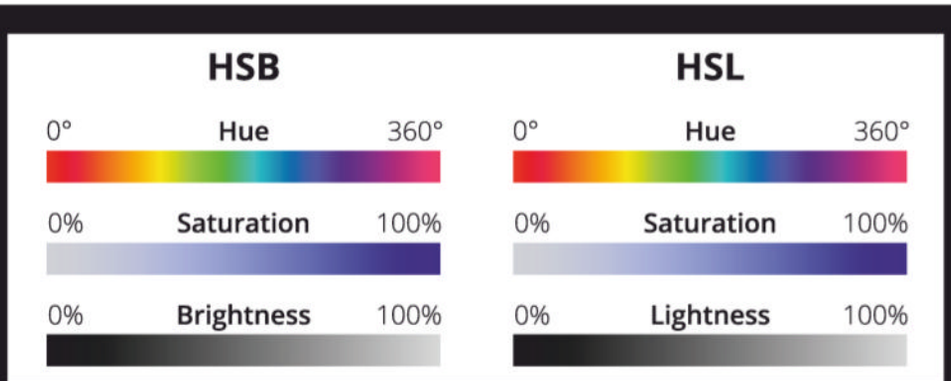


Monochromatic colours

This is where several shades of the same colour or very similar colours appear together. They are ideal for capturing layers in the landscape on a frosty, blue morning or fiery sunset, for example. Contrast is low, so images can be tranquil and harmonious, but lack depth if used incorrectly.

HSL demystified

You'll hear the term HSL a lot in photography. This stands for Hue, Saturation and Luminance and you'll see these represented as sliders in most editing software. Hue is the base colour you are working on, Saturation refers to the amount of grey present in the colour, affecting its intensity, while Luminance is the balance of black and white in the colour – its brightness.



SHOOTING SKILLS

CUSTOMISE COLOUR REPRODUCTION

Create a custom white balance preset in-camera & shoot images with accurate, true-to-life colour

One of the biggest advantages offered by digital photography is the ability to adapt the camera to changeable lighting. In analogue days, should the colour balance of the ambient light change, the film type would have to be swapped to compensate, wasting the remaining frames. In the majority of cases, a white balance preset can be chosen from the camera menu, which will quickly adjust the colour bias to prevent strong casts. However, these presets are designed to cater for average lighting under usual conditions, and hence may lack absolute accuracy.

Therefore, in order to produce the most print-ready file possible, a custom white balance can be created for the current shooting environment. This is especially useful when shooting in JPEG format, when there is a requirement for large buffer capacity for example, since colour cannot be altered non-destructively, unlike with RAW files.

Using a standard white balance target, which is usually white or 18% grey, the camera is able to calculate a colour temperature that best represents the hues present in the scene, tailoring reproduction to the lighting that exists on a real-time basis. This improves colour fidelity, which can make a big difference when attempting to render natural tones in outdoor, interior or studio settings alike.

Right
Unnatural cast
While the overall range of tones is pleasing, there is an artificial warm cast present. A cooler preset WB like Fluorescent rendered the window area overly blue

1 Use a white balance preset It is always useful to try implementing a preset white balance (WB), especially in new environments, to see if any are appropriate without customisation. This may be possible under simple lighting.

2 Shoot a reference target In mixed or studio lighting, where colour bias is obvious, hold a WB target so that it fills the frame and shoot using any preset. Prevent strong lighting falling on the target to avoid overexposure.

3 Select an image Enter the menu, navigate to the WB options and choose an image containing the target from which the camera can derive a reference colour balance. Choose the image that best represents light intensity.

AFTER

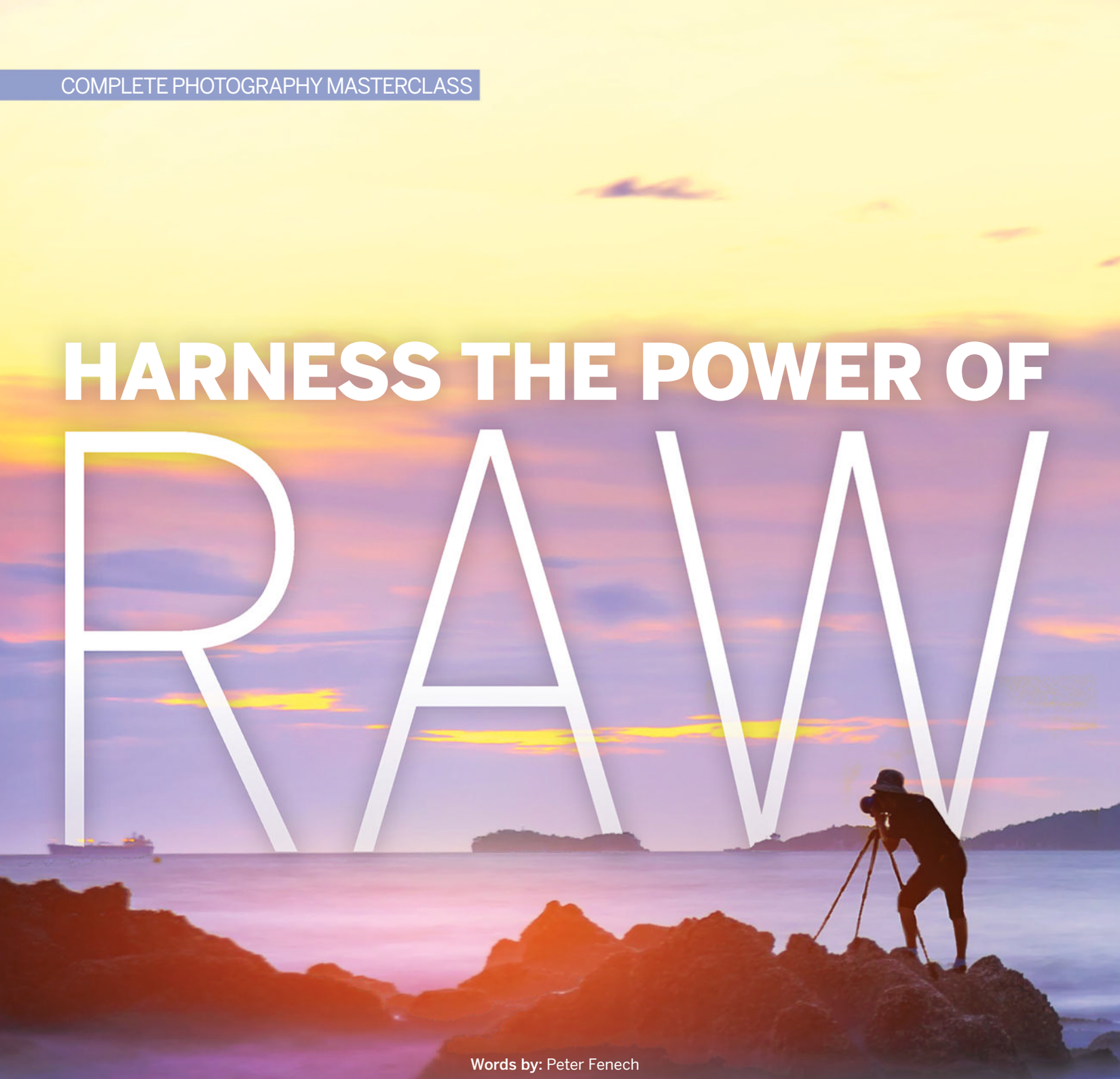
Customised balance
In real-estate photography, true-to-life colours are essential for brochures and so on. A custom WB preset provides better colour precision than a standard setting

4 Choose custom preset Once your custom WB has been defined and saved, use the command dial to select that preset name from the WB options. Be sure to choose the preset you just made, to guarantee colour accuracy.

5 Shoot a test image Now take a test shot to see if you are happy with the colour balance suggested. If there is an obvious bias, try reshooting the target, ensuring it fills the frame and is evenly lit.

6 Fine-tune tint For small colour shifts, further customise the colour balance using the fine-tune screen, if your camera model has this functionality. Make small tweaks and shoot another test.

HARNESS THE POWER OF RAW



Words by: Peter Fenech

For better image quality and creative control, get more from your RAWs

Among the first things digital photographers learn when moving up from beginner to enthusiast level is that pro photographers shoot RAW files. While this is a little reductive – jpegs are still useful in a professional capacity – it is generally accepted that the RAW file format is superior to jpeg in terms of its flexibility and creative potential. This is due to multiple factors, both at the moment of exposure and after your photoshoot, in the digital darkroom.

With the camera in RAW capture mode, once the sensor has been exposed to light and the shutter curtain has closed again, photo information is handled differently. The camera's onboard computers read the charge created by light striking the photo-sensitive materials and pass it down a chain of processing. There is usually some degree of charge amplification and interpolation to ensure life-like colour reproduction, but eventually, it is time for the image to be saved on the memory card – or the computer's hard drive, if you're shooting tethered.

When shooting jpegs, there is some compression of the image data at this stage, to reduce the file size and save storage space. In digital photography 'compression' means data loss, since a portion of the information is removed from the file before writing. RAW files are spared this step, meaning the recorded image file is larger and contains more colour and detail to work with.

To get the best out of RAW files, we must know how best to expose the images and how to treat them in software. So, let's explore this versatile file format.

Pictured
Tricky lighting
The RAW file format offers peace of mind in challenging conditions, as it is far more forgiving of minor exposure errors and allows plenty of detail retention

Above
In-camera success
Despite the main benefit of RAW being its editing freedom, you need a good quality image to work with

CAPTURE PERFECT RAW FILES

Adjust your camera work to capture better-quality RAW images

One of the interesting aspects of professional photography is how we tend to fall into a pattern of camera work that is repeated every time we go out to shoot. Since experience consigns many tasks to muscle memory, this can increase the consistency of your image quality and make your shoots more efficient.

However, on occasion, you may have found yourself cutting a few corners in this process to speed up your image turnover. Or you have become so involved in the subject that you forgot to follow your established camera 'workflow'. It is useful, therefore, to occasionally check that you are still shooting in a way that will capture the best possible images your kit is capable of producing.

Many photographers are aware of techniques such as exposing to the right (ETTR), which is an excellent method of maximising the quality of your RAW files. By overexposing your images slightly, ETTR pushes the exposure to levels at which modern sensors capture an optimal level of colour and detail information, while tipping the signal-to-noise ratio in our favour. However, the ETTR method is often not performed to its full potential, because of a little-known quirk of most digital cameras. When you preview an image, it turns out that your camera is often lying to you.

All the professional techniques we learn to improve detail capture, such as ETTR, metering for the highlights and using the histogram, are all based on adjusting the exposure until the preview image contains as much detail as possible before the highlights are blown. The problem is that the preview image shown on your camera's rear LCD screen is not the true RAW image, rather it is a jpeg preview.

You might think this irrelevant since you base your exposure on the histogram not the preview image. However, this too is a readout of the jpeg data, not the RAW. Therefore, when you reference the histogram and see that it is touching the right wall – which would seemingly indicate a loss of highlight detail – this might not necessarily be the case.

For this reason, to capture the maximum possible data in your RAW images, it is useful to learn exactly when your particular camera make and model starts to clip detail. Armed with this information, you'll be able to accurately tailor your exposures in any lighting.

Above right
Brighter bias
Shooting brighter images means you can capture greater detail with reduced noise

The deal with DRO

Dynamic Range Optimisation (DRO) is a camera feature that extends the visible range of detail in an image, out-of-camera. Just like a jpeg picture style, however, the mode doesn't apply any effect to RAW files, since processing is required – the camera merely underexposes and lifts the shadows. However, some photographers feel that by engaging DRO, their camera seems more in tune with their exposure management workflow, when trying to hold the highlights. This may be due to the metering system biasing towards preventing highlight clipping, while capturing as much shadow as possible, almost like ETTR. Try this to see if your camera model reacts differently to high contrast with DRO mode active.

© Peter Fenech

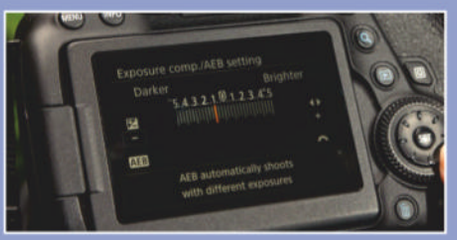
Expose like a pro Shoot to capture the greatest range of detail and colour, and the least noise

1 Set a flat profile In-camera profiles aren't applied to RAW images but set a flat camera style to create a low-contrast preview image. Apparent clipping will occur less often, making the preview closer to the true appearance of the RAW file.

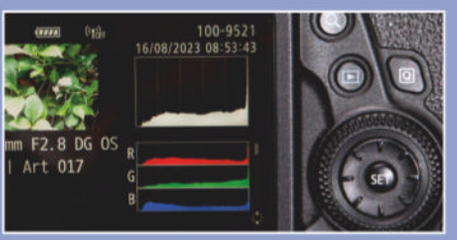
2 Test in controlled conditions When using your LCD in the field, ensure that brightness remains constant and that you have a standard reference for brightness assessment. Compare the LCD against your laptop under a standard lighting setup.

3 Set extended Low ISO At ISO 64 or 50 ('extended' L1 settings), the camera selects the minimum ISO and overexposes for an equivalent brightness. This can cause highlight clipping but minimal noise. Account for this if pushing exposure further.

4 Push the 'blinkies' Increase exposure until just before highlight alerts show. Take a shot, push the exposure until clipping shows on-screen and take another image. This maximises the signal capture, compensating for histogram inaccuracies.



5 Shoot 1EV below To allow for any unexpected LCD brightness shifts, capture a file 1EV below this 'overexposed' file. This allows you to access detail lost through clipping but saves card space compared with auto exposure bracketing.



6 Check RGB histograms The luminance histogram is even more inaccurate as it doesn't convey channel information. Always refer to the Red, Green and Blue graphs to get a better view of the potential clipping of individual channels.

ONE FILE, MANY POSSIBILITIES

Bolster your portfolio with multiple image variants from one single exposure

After making RAW our format of choice, we soon notice that the images out-of-camera are far from print-ready. If you are going to shoot RAW files, some degree of post-processing is required to make shots ready for display – one of the main reasons for using the format in the first place. However, the real power of RAW becomes clear once you start to get creative with your editing style.

While applying basic sharpening and colour adjustments may be all you need for some images, you won't get the full use out of your RAW processing software. The biggest advantage of the RAW workflow is that you can apply, revisit, change and resave versions of images at any time, even years after originally adding photos to your database.

A useful feature in many RAW applications, such as Adobe Lightroom, is Virtual Copies. Although the exact terminology may differ depending on the software brand, the functionality is mostly universal. With this option, it is possible to save multiple variants of any image within your Catalog, often grouped together for convenience.

You can make minor adjustments to your edit settings, for small differences in print media characteristics, for example, or make completely opposing styles on the same base shot. As this is non-destructive, your original file remains unchanged, meaning that you will always have another version to fall back on should your editing intentions evolve.

When generating many versions of your RAW images, remember that unless you save a jpeg or TIFF of each variant, you will lose your edits if your computer's hard drive fails. An easily overlooked backup step is to make a copy of your RAW software catalogue on a separate drive. Keep all your RAW files and conversions together in one folder to make any image easily searchable later.

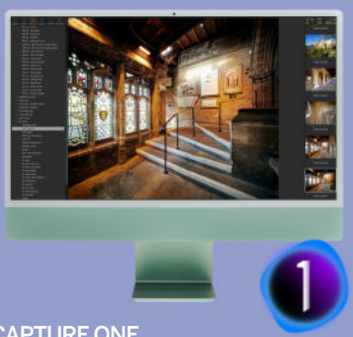
RAW + jpeg

Is there any benefit to shooting both file formats?

Some photographers shoot RAW and jpeg simultaneously, but other than filling up space on the memory card, is there any point in this? If you need to show your images to clients quickly, or as a handy reference when previewing your catalogue, jpegs are useful. However, if you are committed to the RAW workflow, there is no real advantage to having a jpeg alongside the RAW. If you want both, save each format to different cards to keep them separate at the image rating stage.

Rapid re-work
When shooting events such as weddings, RAW files allow multiple, vastly different image styles to be created on demand, for client requests

Top RAW editors Take your pick of the best RAW editing options available today



CAPTURE ONE
Capture One is a powerful RAW editor with plenty of advanced features. In our review in issue 267 of *Digital Photographer Magazine*, we found it offered superior results to Adobe Lightroom and is great for tethered work.

ADOBE CAMERA RAW
The best aspect of Camera Raw is that it's free with Photoshop. While ACR might not look like the most advanced editor, it comes with all the tools you need for global and local adjustments in a user-friendly layout.

DXO PHOTOLAB
Perfect for advanced lens corrections and general non-destructive processing. The DeepPRIME engine makes noise reduction easier and it's also a good option if you would rather pay a one-off fee than a subscription.

Enjoy multiple image options Use RAW processing to create variations of your images

1 High-contrast colour By increasing global contrast and single-channel saturation, images seem to jump off the page. These are best for landscape or portrait images destined for glossy paper.

2 Vintage monochrome A matte effect was added by lifting the bottom of the Tone Curve to 'mist' the Blacks. Noise and a strong Vignette were added in the Detail and Effects panels.

3 Pastel colours For this variation, Split Toning and Colour Grading were used to differentially colour the shadows, mid-tones, and highlights, creating an expired film look. HSL allows bespoke adjustments in each colour channel.

4 Punchy black and white A strong S-Curve in the Tone Curve, increased Clarity, and some dodging and burning with the Adjustment Brush created a contrast-heavy monochrome style. This was enhanced with a Gradient Map in Photoshop.

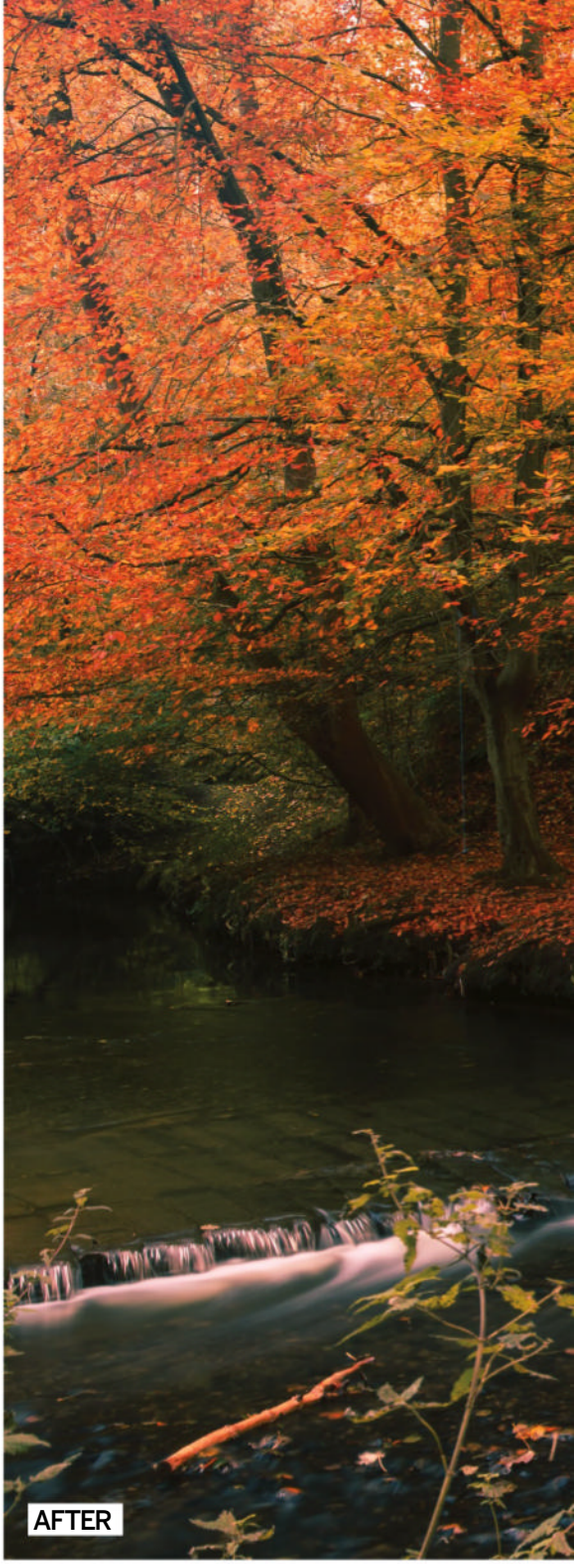
GRADE TO THE EXTREME

Push colour grading to achieve cinematic images without loss of quality

Jpeg files are often described as being 'fully baked', in that the data held within them is of a fixed state. The final colour theme and exposure have been decided upon and those parameters are locked in so that they cannot be easily adjusted without degrading the image quality. That's why, when shooting in jpeg format, the white balance should be adjusted in-camera to ensure it is correct before the finalising process takes place.

One of the greatest benefits of the RAW format is the ability to choose a white balance preset or to select any kelvin value after shooting has taken place. This means that we can choose a global colour theme at any point in our workflow, including any adjustments further local edits may require.

However, the power of RAW for colour editing goes beyond global work. It offers an opportunity to define a colour gradient based on tonality, something that isn't possible with an overall white balance preset. This technique, known as colour grading in the post-DSLR video world, allows custom colour targeting to each of the shadows, mid-tones and highlights in isolation. The image can be managed to replicate the look of film stock or to create a custom range of colour. The flexibility of the RAW format allows us to make extreme adjustments to the colour balance as shot.

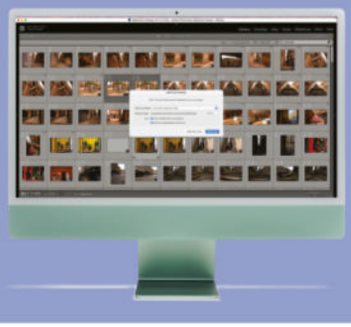


© Peter Fenech

Future-proof your archive

Keep your edit work safe to take advantage of your RAW files in future

One advantage of RAW is the ability to revisit any file and re-edit it, but don't forget to back up the edited files. Since many shots in your RAW Catalog in Lightroom haven't been saved in a printable format, such as TIFF or jpeg, you are at risk of losing the edits. Regularly back up your Catalog file to a separate location. To create new edit options, use Virtual Copies to store variations together. Finally, if you like an editing style, create a preset so you can apply it to other shots in future.

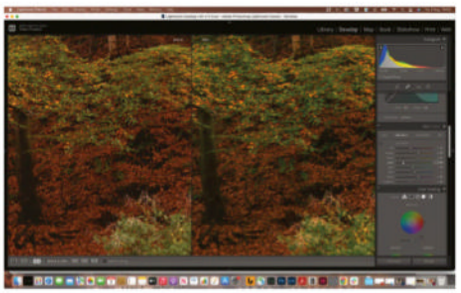


Complexify colours

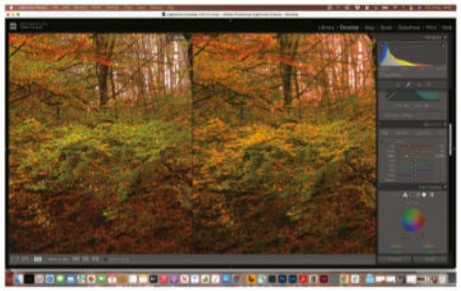
Use your RAW processing software to create colour depth

1 Set Black and White Points Start by setting the global contrast limits using the Blacks and Whites sliders. Hold down Option (or Alt on a PC) and drag the sliders until just before the mask shows clipping has occurred. This introduces greater depth without losing the detail.

2 Adjust Tone Curve Switch the RGB curves and use each one to target colours to different tonal ranges. This is a great first step as you can adjust contrast from the same window, allowing hands-on control over global image styling. Drag up to add colour and down to reduce it.



3 Use Saturation sliders In the HSL tab in your editing software, adjust the saturation of each of the colours individually. This allows you to create further separation of image elements, creating local contrast in a subtle way. Try inverting your settings on a Virtual Copy to experiment.



4 Customise Hue Change the look of each of the colours in your shot with the Hue control. This is an extremely powerful tool when working on shots containing many different colours as it enables us to further separate our subject and craft unique contrast.

5 Calibrate colours Tools such as the Calibrate Tab in Lightroom allow the user to directly alter the colour science of the shot. This is ideal for colour-matching images from different camera brands, but also for creating fully bespoke colour palettes that aren't available from jpeg files.

6 Apply colour LUTs Although not all RAW editors support direct Lookup Tables, it is often possible to create these from RAW setting presets and import them. LUTs allow the quick application of different colour sets. Just be sure to adjust the intensity to match your current image.

EXTRACT MAXIMUM DETAIL

Use the RAW format's flexibility to capture a huge range of natural textures

Although shooting RAW gives you the maximum scope for detail extraction, it is important to understand how best to find and represent texture to get the most from your camera's sensor. The issue with digital photography is that there are many 'invisible' steps in the image creation process between you and the final image and many of these steps are out of your control. The image that gets saved to your memory card is, in many ways, a collaborative effort between you and the programmers at the manufacturer.

As with many examples of progress, improvements in digital imaging have come about as a result of automation. The benefits of mirrorless technology and lens design are often born from an increase in automatic corrections, which cannot be deactivated, but this can result in the photographer feeling left out of the equation.

While it may not be possible to intervene in such processes, being aware of what your camera and lens are doing at each stage of the shooting process will help ensure that they don't work against you.

Let's explore how we can take maximum control over the look of our RAW files, from the point of shooting them in the field to adjusting the tones in RAW editing software.

THE sRAW ADVANTAGE

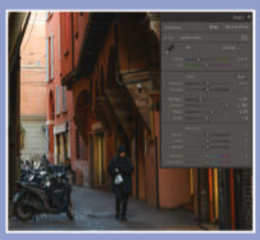
Most cameras can shoot lower-resolution sRAW files. These save space while providing RAW flexibility. It's not often best to 'waste' pixels, but even the smallest options today are big enough for print, so this feature is great for saving space and hastening file transfer when on the move.

Pictured
Delicate details
RAW imaging is useful for any genre of photography. In macro and nature shots, for example, the greater colour control allows fine extraction of detail in single channels

HEIF files A newer format with better quality than jpeg

A relatively new player in the file format game, the High-Efficiency Image File format offers greater image quality than jpeg, with a smaller file size, due to more effective compression. Because it is a container format, other image data can be stored within files, allowing some non-destructive editing potential. However, the format isn't as versatile as RAW and there are compatibility issues with many mainstream editing applications.

Single RAW HDR Make full use of the image data stored within your correctly exposed RAW files



1 Compress range Pull back the highlights and lift the shadows using the corresponding sliders. This creates a good base on which to add further adjustments. We're working in Lightroom, but most RAW editors work in a similar way.

2 Reintroduce contrast The compression of the range can leave the global contrast looking a little flat. Use the Curves control to add a subtle S-curve, creating a more natural look. The beauty of non-destructive editing is that it can be adjusted later.

3 Adjust details Here, we increased Clarity to generate some structure and used the Texture slider to bring out patterns in the cobbled street and textured buildings. We also used some negative Dehaze to add weight to the shadows.

4 Linear Gradient The scene was illuminated from behind, so to increase the brightness on the left, a Linear Gradient was drawn across it. This lifted that area of the shot but maintained the gradient moving away from the camera.

5 Radial Gradients The Radial Gradient option produces realistic effects around light sources. We darkened the highlight 'hotspot' on the far building and added more to brighten the light spilling from the cafes, making the scene glow.

6 Create Luminance Map Add another mask and choose Luminance Range. Select a shadow area that isn't truly black. Use this to target detail lifting and noise reduction in darker areas. We added subtle negative Temperature for colour depth too.

© Claire Gillo

© Peter Fenech

Below
Adobe Lightroom edit
Moving elements made multi-shot HDR hard, but by exposing for the highlights in RAW, an HDR effect can be created in a single file

Secret steps to better images

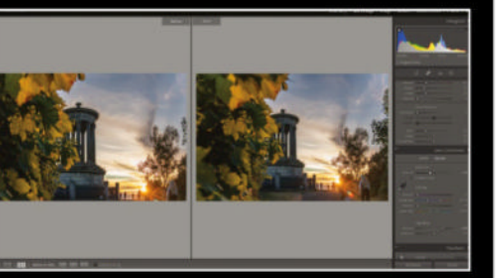
Pro tricks for improved detail

USE THE 'WRONG' LENS PROFILE

Lens profiles are a quick way to iron out distortions, but sometimes one created for a similar model produces better results. Try lenses with a similar focal length from the list of presets to see which you prefer.

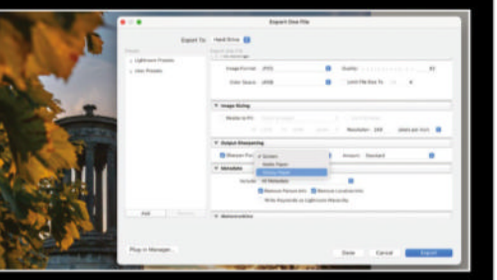
APPLY JPEG PROFILES

Although Picture Styles aren't applied to RAWs, you can set up proprietary RAW software to load presets on import. This means that you'll get similar results to what you saw on your camera LCD in the field.



WIDEN YOUR FIELD OF VIEW

You can squeeze more edge detail from your images by turning off automatic lens corrections, where possible. It may reveal vignetting or distortion but custom adjustments might suit your image better.



SHARPEN TWICE

For superior detail, sharpen an image in the Detail panel of your RAW editor, then again on output, based on media destination. This tailors detail extraction for the paper or screen type your images will be seen on.

PART 3:

SHOOT LIKE THE PROS

PRO PHOTO WORKSHOPS

Alistair Campbell

As the former Technique Editor for *Digital Camera* magazine, Alistair writes about a broad range of photographic genres. For this feature he has kindly put aside some time to discuss the benefits of using gels and also gives some tips for controlling ambient light with an artificial source.
digitalcameraworld.com

Rory Lewis

Renowned for his oil painting-inspired lighting style Rory is an expert in controlling flash and shaping light to bring out drama and detail. This makes him the perfect tutor in how to use flash modifiers to direct light to the key areas of the subject and scene. Read his step by step tutorial over on p106.
rorylewis.studio

EVERYTHING YOU NEED TO KNOW ABOUT

FLASH

Master the art of professional flash photography, both indoors and outdoors

Pictured
Total control
Mastering flash photography equips you with the skills to control the styling of your images, at any time of day and either indoors or out

Flash is a tricky aspect of photography to learn. If used incorrectly, the artificial light can spoil the ambience of an image, introduce harsh shadows and highlights and bring out unwanted textures. It can also create unnatural colour casts, draining the life and energy from the subject of an image. For these reasons, newcomers to photography decide quite quickly that flash should be avoided, except as a last resort.

The truth is quite the opposite. In many circumstances, flash can transform an image into something magical, vastly increasing the contrast, depth and colour fidelity.

Without flash, the photographer is reliant on natural light, which can be difficult to control. It is not possible to adjust the colour temperature and intensity of sunlight, we don't have the freedom to reposition the light source, nor the direction and angle of the shadows as they fall across our subject.

The key to dramatic flash images is achieving a balance between natural and flash light. Sometimes, it's better for the flash to dominate – in other cases, it should assist the ambient illumination. With help from the pros, we'll learn to recognise when each option is better. Once you are confident reading the light, you'll never look at flash in the same way again.

OVERPOWER THE LIGHT

Alistair Campbell uses off-camera flash to balance the ambient light for an edgy finish

Whether you are relatively new to photography or a lifetime hobbyist, the chances are you will, at some point, have used a flash. But not everyone has used one off-camera. Many flashes are built-in or easily fixed to the top-mounted hotshoes and fired with no extra gadgets needed.

By introducing a trigger and receiver system you can take your flash off your camera body and fire it from an alternative angle. This will allow you to add a new string to your photography bow and elevate your images away from indoor party-style, full-frontal, flat-looking light.

When I started out in photography, one of the first items I invested in was a reflector. They are cheap and light but, working alone, it can be tricky to bounce light as you hold them in one hand and fire off your shots with the other. On a windy day, you have no chance of keeping it still.

By getting your flash away from your camera, you can now start shaping the light or countering the sun with your own artificial power.

SPEEDLIGHT OR STROBE?

Deciding on a flash type depends on factors such as power and portability. Speedlights are more practical when travelling and can be handheld for greater flexibility. However, strobes are better for light output

Pictured
Greater separation
Widening the gap between the ambient illumination and the added flash introduces contrast and ensures that the subject stands out from its surroundings, giving an editorial look

Understand groups and channels

Take greater control of your off-camera flash units with these settings

Wireless flash offers bespoke lighting but can generate practical challenges. If more than one photographer is present in a location, cross-triggering can be an issue, so assigning channels to your flashes will ensure your speedlights only respond to their radio frequency. Channels can be set either from the camera and flash menus or by physical switches on some radio triggers. Groups allow further tuning of styles. Flashes can be divided into groups, each with independent outputs, and can be activated and deactivated from the camera.

Override natural light Overpower the ambient light using a speedlight or strobe

1 Mount your flash I set up my gear at the start of the shoot to make sure everything is working. Your flash should be easy to mount – you can get dedicated holders or a universal hotshoe mount for most lights.

2 Place your light A good starting placement for your flash is around 30 to 45° from the camera; at a height about 30 to 45° above your subject's head. This will keep a dramatic but flattering light on your subject.

3 Take a reading Take a reading (without the light on) of your scene, meter for the brightest part of the image, in this case, the sky. You can even underexpose by a stop, you'll hopefully have a dark subject.

4 Activate your trigger Attach and power on your trigger and flash. Switch to manual mode (not TTL). If shooting at f/2.8-f/8, start at 1/16-1/64 power. Move the flash further or closer to the subject.

5 Shoot your image Use a low ISO of 100-200, then set your shutter speed to anywhere between 1/125 and 1/250. Now, experiment with your aperture until your shot looks good. I settled at f/8 for the main image.

Right
Take control Where flash has the dominant share of the light ratio, it is more visible but enables the photographer to introduce custom highlights and shadows on demand

BLEND THE LIGHT

Make flash complement the ambient lighting

In many cases, flash is at its most effective when the viewer is unable to tell whether it was used. With care, it is possible to integrate the light from your flash so seamlessly that it is not easy to identify which source is dominant. This technique is popular because it is capable of producing seemingly 'impossible' lighting, where the subject and environment are illuminated so it appears natural, but the distribution of shadows and highlights is such that detail is perfectly controlled, which is unlikely if only natural light is present.

This is described in terms of flash ratios – the relative contribution of the total light originating at each source. For blending purposes, aim for an equal contribution. Where possible, the subject should be lit by environmental lighting, with flash used to lift shadows, add colour vibrance and create glints in the subject's eyes.

For more effective blending, allow as much ambient light into the camera as possible. With global exposure calculated, switch to manual and lengthen the shutter speed by up to a stop to brighten the background. If the subject becomes overexposed, simply turn the flash down further. You should now have a more balanced light contribution.

Blending light sources

Seamlessly mix ambient or natural light with a speedlight or strobe

1 Match or mirror Place a flash where the ambient source would be or opposite, to fill. Start by placing the flash at the same angle to the subject as the main ambient source. This will fill in shadows while maintaining the natural light direction. Alternatively, place it at the reciprocal angle for a stronger source light.

2 Diffuse the light We need to soften the light from the flash in order to prevent harsh shadows. In this case, we are using a speedlight-dedicated softbox, which will provide a more directional beam than an umbrella, mimicking sunlight while offering softer shadows.

3 Meter the scene In Aperture Priority mode, take a meter reading from the background, adjusting f/stop and ISO to maintain shutter speed at or below the maximum flash sync speed (usually 1/200 sec). Switch to Manual and lengthen the exposure or open aperture by half a stop.

4 Turn down power The final step will be to allow more light into the camera and close the intensity gap between the ambient light and light from the flash. To bring this further into balance, start at 1/16th power and lower this output until the added light is just visible.

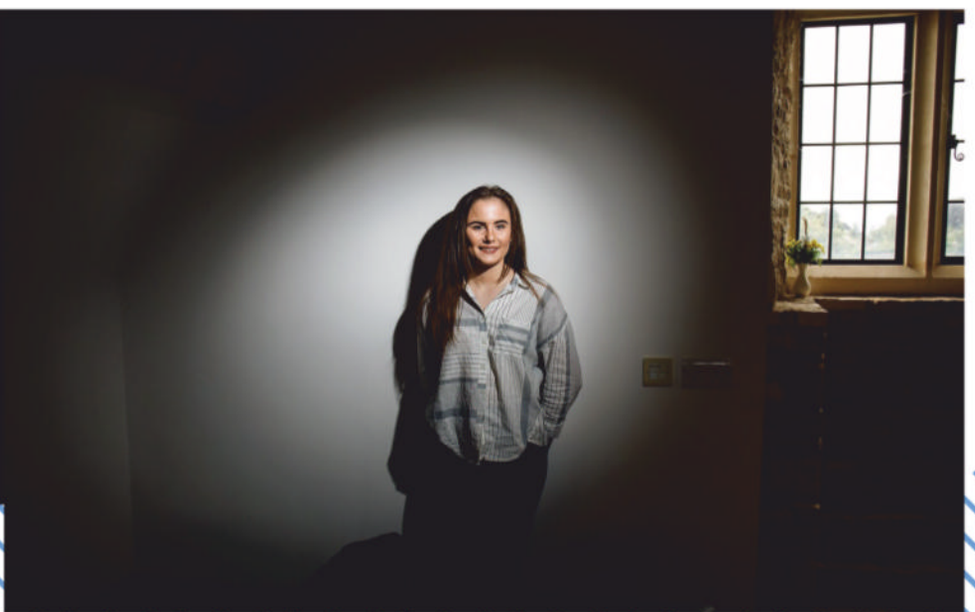
5 Feather the light If needed, rotate the flash so that it fires past the subject, illuminating them with the edges of the beam. This will reduce unwanted hotspots (bright highlights) and further soften shadows, notably on the face. Alternatively, try bouncing the light off a neutral surface.

6 Adjust the distance Move the flash closer to and further away from the subject to vary the extent to which the light wraps around them. The shorter this distance, the less directional the light will appear, softening shadows, so err on the side of closer, and adjust the output accordingly.

Control spill

Alter the look of your light by controlling speedlight zoom settings

By changing the zoom position on your speedlight it is possible to narrow or widen the light beam emitted. A higher zoom (such as 105mm) will produce a narrow, spotlight-type beam, while 24mm will spread light over a wider area. The latter is better for group shots or interiors, while a high zoom is better for creating separation between the subject and background and for dramatic effect.



Pictured
TTL behaviour
With TTL modes, the flash output will be affected by where the AF point is placed.

Pictured
Lifestyle look
Using flash enables strict colour balance control and prevents unattractive shadows.

Pictured
Cinematic styling
By carefully selecting colours, we added further dimension to this theatrical portrait subject

WORK WITH COLOUR

Alistair Campbell mixes warm and cool lighting to achieve a modern portrait finish

Colour is one of the main creative tools in photography. There are many ways to play with colours and modern technology makes it even easier – LED lights have millions of built-in colours to choose from. In the past, gels would often be used for creative techniques but now people are using them to light highly creative environmental scenes and editorial fashion and portraits.

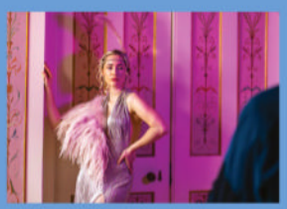
One way to select a colour theme and find those which go well together is to select two complementary colours. Blue and orange are a popular combination, for example, due to the orange and teal colour grading regularly seen in modern cinema. You don't have to stick to only complementary colours though – let your imagination run wild and trust your intuition. Colour harmonies look good to our eyes, so a trained intuition will instinctively go for those which work together attractively.

Choose your gels

Use colour control to produce eye-catching theatrical images with contrast and energy

1 Set light position The first task is to set up your lights. The height of the light source is a critical decision – I tend to set everything up at head height or lower. This just makes the process less of a struggle and is also a lot safer.

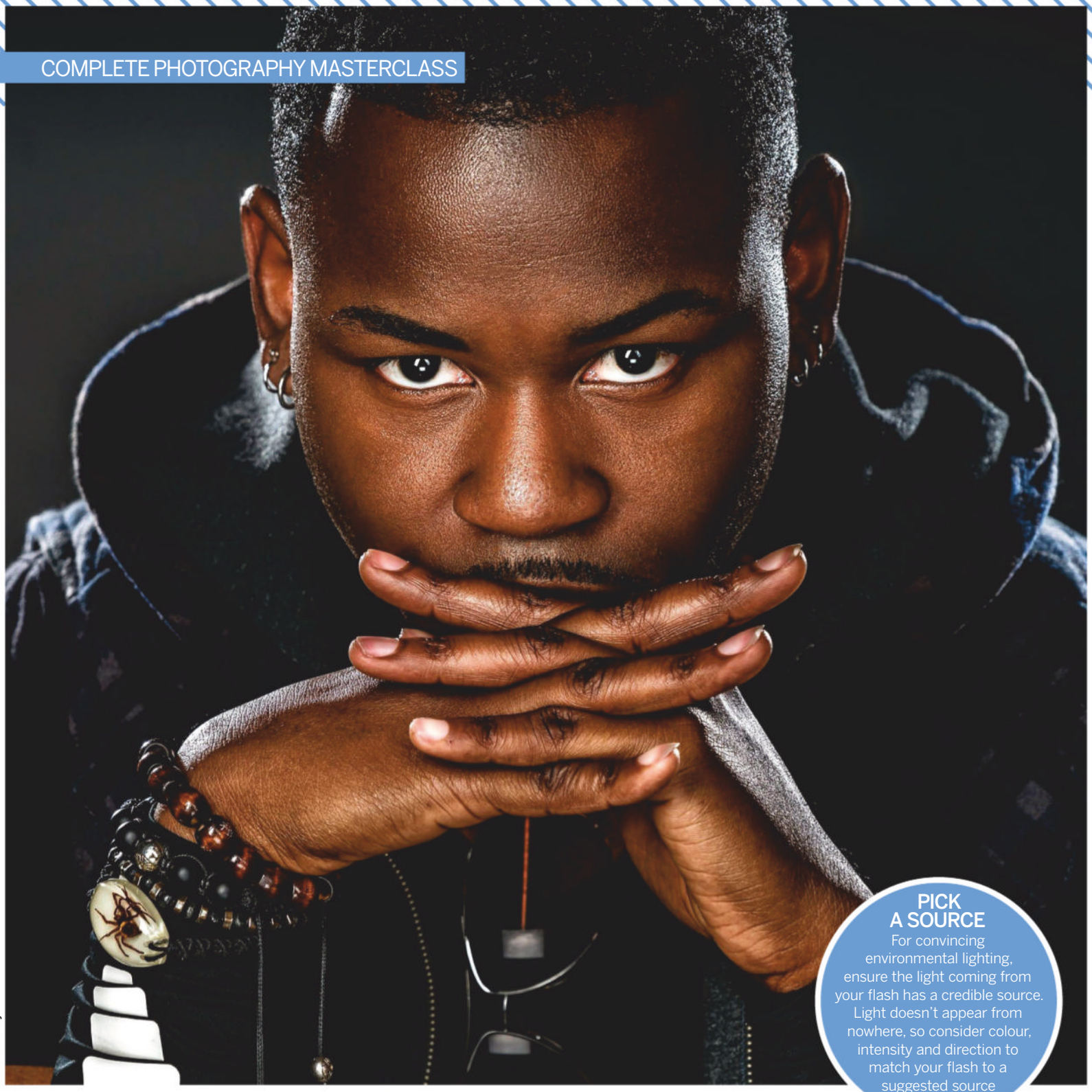
2 Select the gels These Rotolights by Sony have colour variation control built-in, but you can also apply this process if you are using physical plastic sheeted gels too. Choose your primary colour – here, I've selected magenta.



3 Assess the balance At this point, have a look at your model in the light before mixing in other colours. Sometimes, the light you selected won't mix with your background, so reconsider the colour theme if necessary.

4 Add some secondary lighting Grab your second light source. At this point, I'll put the lights in a position to shoot the scene. Here, it's approximately 45° to the side and above – a classic arrangement.

5 Chose your supporting colour Finally, set your colour on the light (or add the gel) to something that will work with your base colour. Refer to the colour wheel for inspiration – pairing opposites together usually adds depth.



PICK A SOURCE
For convincing environmental lighting, ensure the light coming from your flash has a credible source. Light doesn't appear from nowhere, so consider colour, intensity and direction to match your flash to a suggested source

USE HIGH SPEED SYNC

Capture pin-sharp action or shallow focus using flash and fast shutter speeds

If you are shooting in a studio with your subject framed against a seamless background, you probably won't need to use high-speed sync (HSS) flash mode. That's because you can easily keep your shutter speed below the maximum flash sync speed, by stopping down your lens to f/11 or smaller.

However, if you are shooting outdoors with an ultra-bright lens such as an 85mm f/1.4, and want to throw the background out of focus, there is an additional challenge. At these settings in full sun, even at the base ISO of 100 or 200, it will be almost impossible to limit the exposure duration to shorter than around 1/200sec.

Once these settings are exceeded, the image will become unevenly exposed, due to the imperfectly aligned timing of the shutter movement and the flash duration. On some cameras, or with certain flash triggers, the flash may not fire at all, or the image will be overexposed. With HSS mode, it is possible to increase the shutter speed all the way up to the maximum (approximately 1/8000sec).

This works by emitting an extremely high-frequency pulse of light, covering the whole flash duration, providing even exposures. However, this does have a trade-off in power output, so it is necessary to limit flash-subject distance or add another flash to compensate.

HSS mode works by emitting a high-frequency pulse of light, providing an even exposure

© Breno Cardoso

Far left
Light fall-off
Another reason to use high-speed sync is to underexpose backgrounds, by cutting ambient light with high shutter speeds, for a dramatic style

Tips for using HSS

When to use high speed sync mode and how to do it effectively

1 Take a meter reading
Unless there are creative reasons you'd like to use HSS mode, first try to see if you can keep the shutter speed near the maximum sync speed. Set the lowest ISO available, including extended low settings, keeping an eye out for overexposure.

2 Try the gradient
Even if the shutter speed creeps above the max sync by around half a stop, or similar, observe the effect this has on the image. Assuming the flash still fires, the gradient produced can be an attractive image feature in some cases.

3 Lock your settings
To ensure that your shutter speed doesn't vary, causing changes in the flash output, lock your settings by switching the camera to manual mode. Once you are happy with background exposure, you don't want any exposure shifts to occur.

4 Set HSS Mode
On your flash unit, select and toggle the high-speed sync mode. This is usually denoted by 'HSS' but it can also be a lightning bolt symbol. This mode can be activated either by scrolling through the modes or pressing and holding an on-flash button.

5 Shoot and review
Take a test image to gauge the ratio of flash and ambient light. If the subject is too dark, try moving the flash a little closer or reducing the shutter speed to allow a greater flash output. Similarly, check the histogram for blown highlights.

6 Remove diffusers
If the flash is not powerful enough to provide the reach you want, make sure all diffusion accessories and modifiers have been removed, to allow as much light as possible to cover your subject. Ensure you are at maximum flash power.

Left
Double-up on power?
Adding a second flash to your setup only increases the output by a stop of light. To add two stops of light, you would need three speedlights

SHAPE THE LIGHT

Renowned portrait photographer **Rory Lewis** explains how to make best use of lighting modifiers

Octagonal softboxes are a great lighting accessory to improve your flash-lit portraits, but what exactly is an octabox, and how can you use one to achieve stunning results? An octabox is a lighting modifier with eight sides. It can be attached to the front of a speedlight, studio flash, or continuous lighting source, depending on the mounting compatibility.

Creating quintessential diffused lighting effects, this look is my go-to lighting style for simple and effective portraiture. Note that octaboxes come in many different sizes, from small to very large, the latter often being used for large product photography and full-body portraits. I prefer small softboxes such as the Profoto OCF, which direct all of the light onto the faces of my subjects. **rorylewis.studio**

Essential flash accessories

Choose the peripherals for easier flash photography

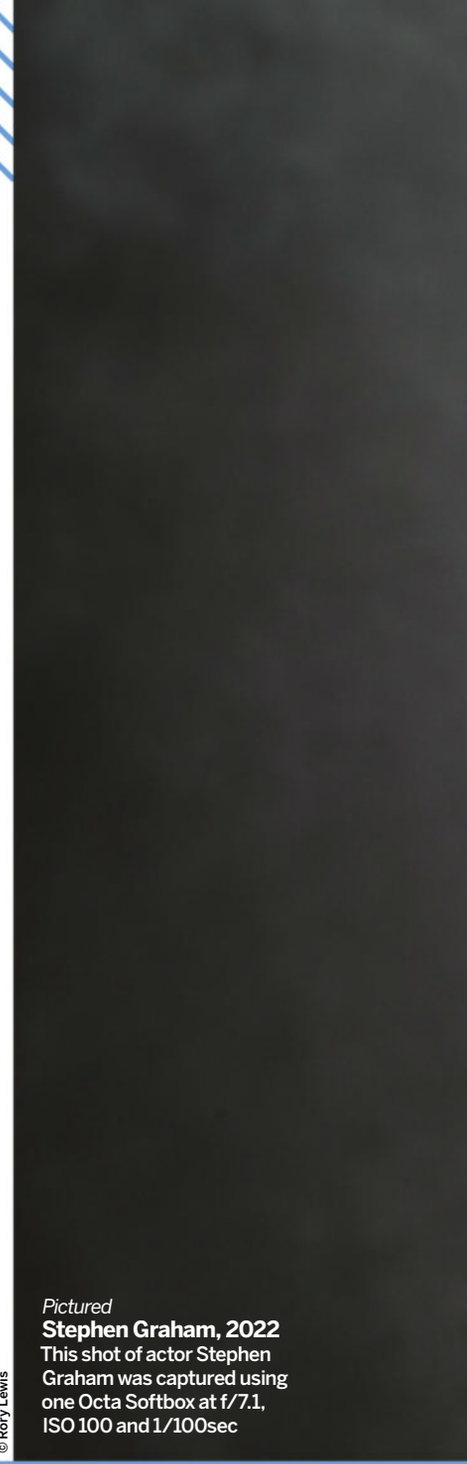
HANDHELD DIFFUSER
While large modifiers are necessary, for smoothing fill light or off-camera flash on location, a handheld diffuser is a portable and practical accessory. Keep flash power low as diffusion is not as effective as with a softbox.

SPEEDLIGHT TRANSMITTER
Radio trigger pair sets are an affordable solution and effective with smaller setups, but where multiple flashes are in use, a dedicated transmitter will enable quick and easy assigning and control of groups.

BATTERY PACK
When working out on location, away from power outlets, especially at events, a portable flash battery pack will extend the length of flash operation. It is possible to buy these for both strobes and speedlights.

REFLECTOR
A must-have in any photographer's flash inventory, a double-sided reflector allows fill light to bounce back onto the subject, providing a subtle lift to deep, unflattering shadows. Gold types offer warmer light.

"An octabox is my go-to lighting style for simple and effective portraiture"



Pictured
Stephen Graham, 2022
This shot of actor Stephen Graham was captured using one Octa Softbox at f/7.1, ISO 100 and 1/100sec

© Rory Lewis

Light tools A range of tools will help you shape the light

x6 © Rory Lewis

1 Position the softbox A great octabox setup for beginners is the simple 45-45 arrangement, where you position your light about 45° from your subject, elevated slightly above eye level. Your subject can look directly at the camera or they can face in either direction for slightly different effects.

2 Break the ice Engage with your subject before you start shooting. Discuss your goals, ask them about their day or offer them a cup of tea while you talk. In my experience, you can accomplish more with ten minutes of chatting and two minutes of shooting than you do snapping away in silence for an hour.

3 Position your subject Place the subject around one metre (approximately 3ft) in front of the background to create some separation between the image elements. After all, we are using only one light and don't want to cast a strong shadow on the backdrop.

Absorb or reflect

Further control the intensity of shadows with a reflector or flag

Once you have set up your main light, complete with a modifier such as a softbox or an umbrella, you can fine-tune the shadow structure. Placing a piece of white material on the far side of the subject from the flash will reflect some neutral light back, thereby lifting the shadows slightly, as Rory did for this image. Choosing a sheet of black material, to form some v-flats, will prevent reflections by absorbing stray light and creating more contrast.

4 Focus and aperture Focus the eye nearest the camera for effective lighting. This gives the best angle for the viewer and a centre point to the portrait. Choose an aperture between f/4 and f/11 – f/4 will give you a softer effect while f/11 will keep the subject completely in focus.

5 Polyboard or reflector If you are using just one octabox, you may find that your shadows are dark and deep. For this shot, I used a white polyboard to offer some more bounce. This lightened things up and made for a slight shadow, allowing me to maintain all the detail.

6 Create drama This effect is called short lighting. It's a classic portrait lighting pattern where the subject is lit from the side of their face that is furthest from the camera and it looks wonderfully dramatic. Try moving the subject a few centimetres to the left or right to achieve different results.

SHOOTING SKILLS

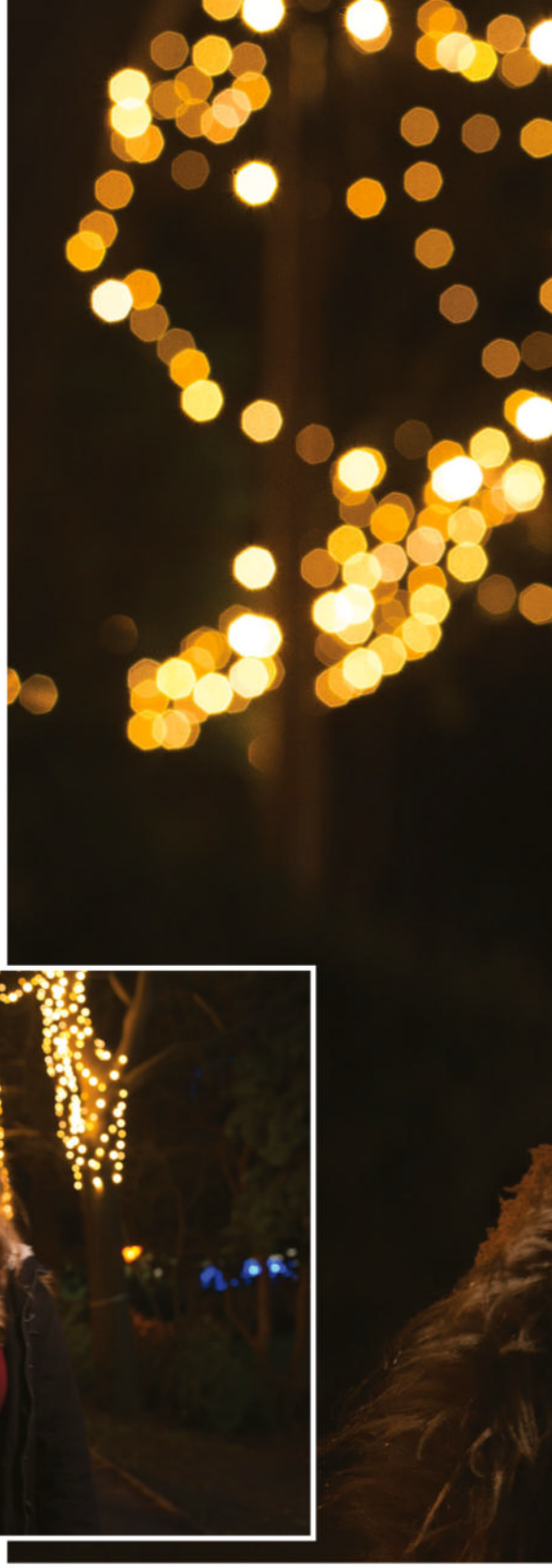
USE PORTABLE CONTINUOUS LIGHT

Work with small continuous light sources on location and learn to overcome common challenges for the best results

Location lighting always presents certain difficulties due to the uncontrollable nature of ambient light and lack of access to mains power sources. Equipment must also be easy to transport and safe to hold or set up on a tripod or light stand. Off-camera flash is the most common choice, but there are some appealing continuous options now available to photographers.

Accessories such the Rotolight range provide steady, reliable lighting with minimum weight and low heat output. This makes them perfect for dynamic lighting styles out in the field. Advantages of continuous sources are predictable intensity and ease of placement and composition. Since the light is always visible, it is easier to shape than flash.

However, associated challenges are lower light output, battery life and a deficit of diffusion options. Since flash has a short duration, it is possible to freeze movement even in darker environments, while shots lit continuously can suffer from camera shake. If output is set to maximum this can result in light fall-off or blown highlights – adding a diffuser for softer light can reduce the already dimmer light too much. The photographer must thus find the correct balance of exposure and additional artificial light for sharp, flattering shots.

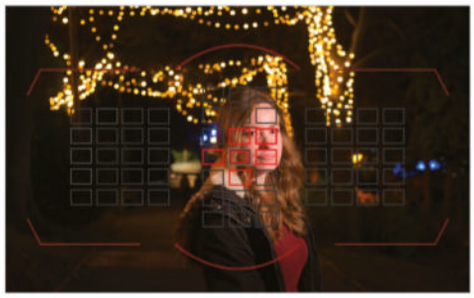


Inset

Insufficient shutter speed
A continuous light must provide enough illumination to allow a sharpness-retaining exposure. Here the shutter speed was unable to freeze the subject, resulting in sharpness loss

All images © James Sheppard

1 Support the camera Due to the lower power, it will often be advisable to set up your camera on a tripod when shooting in low light. Unlike flash, which simulates a short exposure, continuous sources cannot aid camera shake.



2 Compose the shot Use your light to arrange the frame. Don't worry about exposure yet, simply use the illumination as a modelling light to estimate how the final image may appear. Pay attention to background brightness.

3 Find the minimum exposure Experiment to find the shortest shutter speed possible before sharpness begins to suffer, as a result of subject movement. This will vary, but as a standard try not to go below around 1/50sec.

AFTER

Detailed and dynamic
Increasing the ISO and metering from the highlights results in a sharper image, while the convenience of the portable continuous source enables experimentation with lighting angles

4 Adjust output Use this minimum shutter speed as a baseline and adjust the light intensity to maintain this base value. Once this has been guaranteed, focus on highlight detail and alter output to prevent blown highlights.

5 Arrange lighting angle Place your light as you would a flash, often above the subject at a 45-degree angle. Since the light is small and undiffused, the source was moved to ensure shadows fell in a flattering way on the face.

6 Adjust colour temperature Lights such as the Rotolight allow warmth to be adjusted. Set a lower kelvin value for greater warmth. Choose to blend or contrast with the ambient colour temperature.

SHOOTING SKILLS

SHOOT AT CLOSE FOCUS DISTANCES

Adapt your skills at focussing, composition and lighting for dramatic macro shots

Macro shooting opens up new doors for creative and abstract photography. The use of a macro lens allows the capture of fine detail, in addition to a highly scaled-back sense of context, giving the macro and close-up genre tremendous scope for capturing novel subjects in a world of their own.

A popular subject is water and its interaction with natural scenes. Droplets on leaves, or – as is the case with the image featured here – suspended in a spider's web are so effective, as they distort an already unfamiliar view of the world. By cropping in close on droplets, you can resolve the background that lays beyond the water when looking through the droplets, or reflect the surroundings on the surface, as if they are miniature lenses. Indeed, there are now products on the market designed specifically to produce the same effect on a larger scale – the lens ball, for example.

For the most dramatic results it is often best to use the extremes of focusing distance, and shoot a frame-filling composition. This removes peripheral detail and enables the viewer to focus on the image within the droplets. This 'field' compositional technique creates the feeling of repeated detail extending beyond the edges of the frame forever, adding to the abstract nature of the scene. Here's how this technique can be achieved...

BEFORE

Not close enough
A looser crop, using a lower magnification, has incorporated too much peripheral detail into the frame, spoiling the illusion of an endless, repeated droplet pattern

AFTER

Close attention
By using close focusing, context is controlled, while the attractive form of the droplets and intriguing reflections can become the clear subject of the image

All images © Peter Fenech

1 Find a subject Look around your garden for a spider's web that is suspended across a gap, allowing droplets to be isolated from surrounding elements. You should be able to move the camera for multiple angles.

2 Get close To ensure that you're shooting at your lens's closest focus distance, set the closest value in the focus window. Move the lens towards the subject until it's focused in the viewfinder or on the LCD.

3 Vary angle Try varying the pitch and yaw angle of the lens to bring a variety of visible background details into the frame. This can create different views of the same subject, with only a minimal shift in camera position.

4 Fine-tune focus Start to make micro adjustments to focus using a magnified view to guarantee sharpness. Decide whether focusing on the droplet surfaces or the reflected image gives the best sharpness.

5 Use spot metering Switch metering mode and take a reading from highlights on the droplets. This ensures that unwanted background detail is removed, creating studio-style lighting and picking out fine detail.

6 Add background effects A dark background acts as a blank canvas that we can add selective detail to. An LED torch can create dappled light, producing a tunnel-like edge effect and rim-lighting the droplets.

SECRETS OF EDITING

Explore the world of the digital darkroom to improve your photos

There is no question editing is one of the most important steps in the creation of photographs. But whereas post-processing can help create the perfect photo, used in the wrong way, it can also destroy your shot. Today's editing programmes open up countless possibilities and, due to the extensive tools and their capacity for change, it's tempting to take it to the extreme. Radical changes can be intentional, but they should underline the characteristics of your photo in a natural way by sticking to the fundamental principles.

Post-processing is almost as important as the process of taking the image itself – never underestimate how much even minimal changes can potentially improve the overall quality of your photo – but you have to proceed with care and sensitivity. The viewer should never get the feeling that the final photos have been overworked. To achieve pro results from the editing process, you should analyse the image carefully, eliminate distracting elements that couldn't be avoided when creating the photo and focus on existing stylistic tendencies, taking advantage of the software's functions to direct the viewer's eye.

One of the biggest advantages of digital editing is that you can experiment without damaging the original digital files. This means you can learn how to edit to your preferences and create unique atmospheres for storytelling. Take the opportunity to expand your knowledge of tools that aren't in your regular workflow – open up new possibilities for your work and, over time, you will be able to extend your signature style.

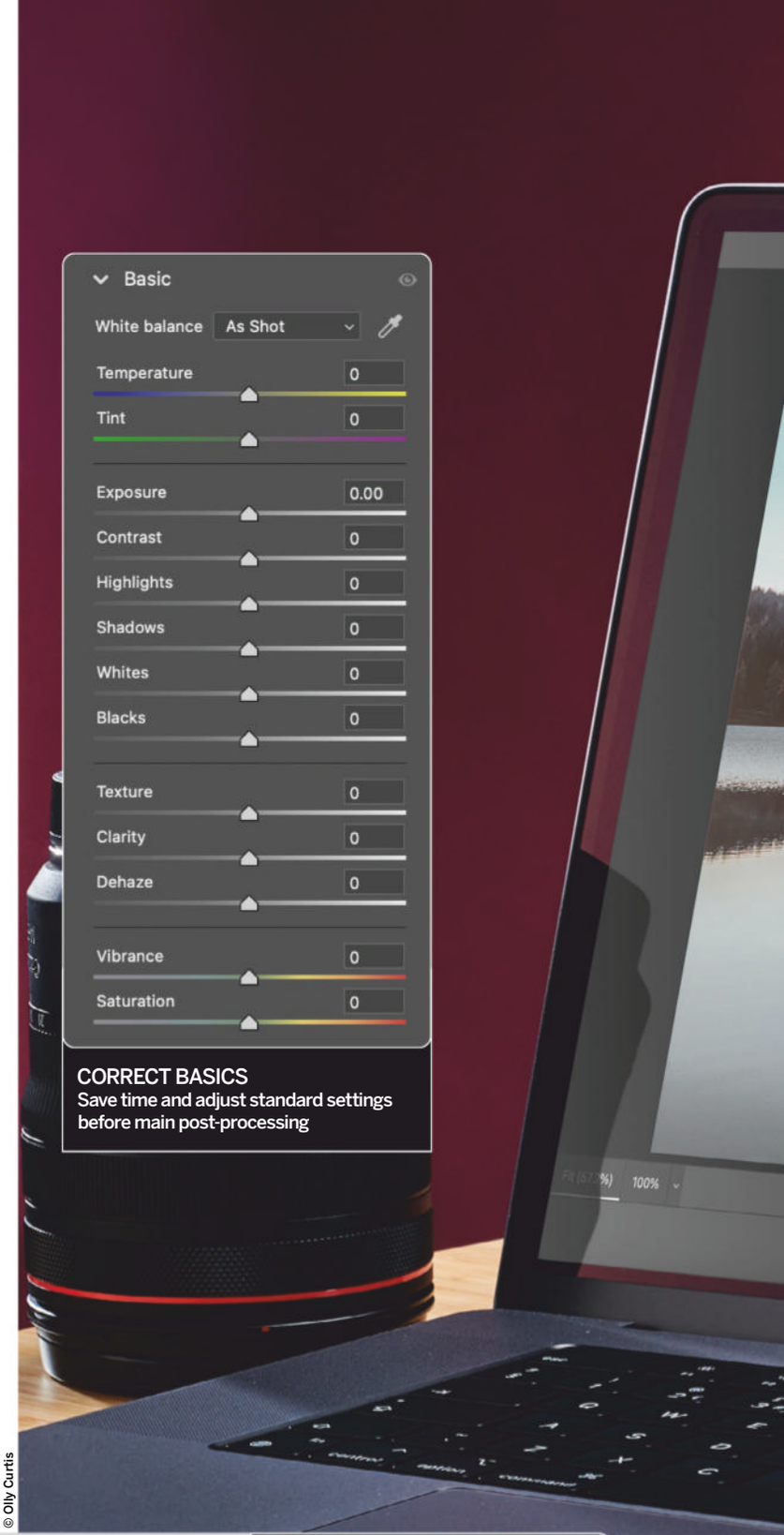
Final edit
The main benefit of digital editing software is that you can edit without damaging the original file. Feel free to experiment and develop your style

ADOBE RAW VERSUS PHOTOSHOP

Understand how and when your photos can benefit from editing

As we saw from p84, high-end photos should be taken in RAW format as it offers more freedom in terms of creativity. But what are the advantages when it comes to post-processing? Open a RAW file in Photoshop, and it will start the Adobe Camera RAW (ACR) editor.

The application is structured differently, but it's clear that the editing functions are similar to those in Photoshop. The difference is that all functions are visible and changeable at a glance and you can also set some parameters that don't exist in Photoshop. When it comes to optimising your workflow and images, it is important to know the pros and cons of both workspaces.



CORRECT BASICS
Save time and adjust standard settings before main post-processing

© Olly Curtis

Use powerful RAWs

Try the ACR editor for basic adjustments

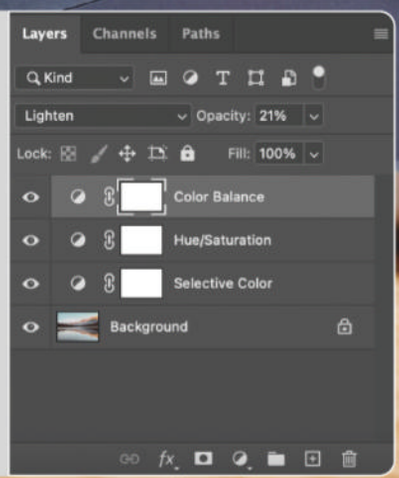
The ACR editor can save you a lot of time, allowing you to work in an intuitive way and giving you control over the basic adjustments. The application doesn't work with adjustment layers or layer masks, instead it operates with sliders, which can easily be altered. This makes it simple to use for beginners, though anyone who has already worked with Lightroom will have an advantage as the structure is similar.

The basic image edits are non-destructive and perfect for finding the right settings or experimenting with visual ideas before main post-processing. Bear in mind that settings aren't reversible after the editing process in the ACR editor, so it is advisable to do your basic adjustments here, so you don't lose control over the photo. The most useful tools are colour correction and batch editing. If your original photograph wasn't taken in RAW format, Photoshop has the option to apply similar adjustments using the Camera RAW filter.

Fine tune in Photoshop

With its almost limitless functions and tools, Adobe Photoshop can be overwhelming for beginners. But with online tutorials and a little bit of initiative, the creative possibilities are endless. Unlike ACR editor, Photoshop works mainly with layers. Each new layer is placed over the original shot and can be removed, copied or edited in its own way. These can be transparent or highlight only selected elements. The big advantage of Photoshop is that you have the option to go back and edit each layer at any time, especially if your previous visual goals have changed.

Different types of layers offer the possibility to create blends of several images at the same time (see our project on p130) and its range of tools open up new visual possibilities. This makes editing your photographs in Photoshop both easy and interesting. Additional plug-ins can be downloaded from the Adobe website, including a wide range of further brushes, gradients and more.



SYNCHRONISE PHOTOS
Select previous settings or open multiple images for batch editing

EDIT COLOUR GRADING
Correct tones and create visual concepts in an intuitive way

Soft sell
Choose your editing software carefully


METALLICA

CONTROL COLOURS

Adjust colour to create a unique atmosphere

If the white balance has been neglected or your visual targets have changed, post-processing can help correct colours. The most obvious way of doing this is by changing settings in the Camera RAW developer.

However, it is advisable to make the settings only as a starting point, as you will lose control of them during further editing. Since the overall colours contribute to the atmosphere of the shot and affect the viewer, more precise changes should be made in post-processing.

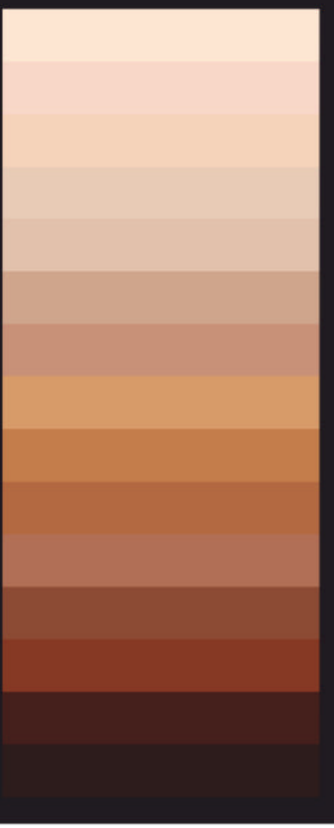
There are several methods of changing the colour, from adjusting the colour balance to using warming or cooling photo filters. One of the most accurate methods is to use the Curve Adjustment layers, the advantage being that they can always be re-edited and improved at a later stage.

Master skin tones

Learn pro editing techniques to achieve natural results

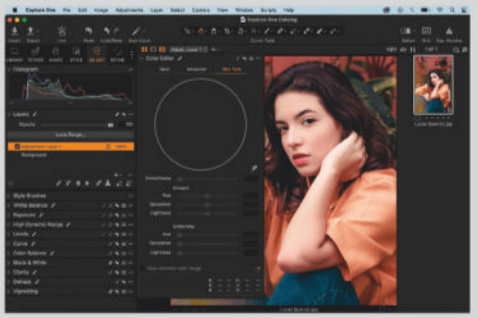
Achieving true skin tones can be a challenge in itself. Under-exposure can lead to undesirable, oversaturated results, but choosing the right settings will lead to soft results. Every skin tone is different and to achieve a realistic overall result, you should not lose natural colour gradations. Besides white balance and exposure settings, the HSL sliders and luminance panel are your most important tools.

Pay particular attention to orange and red tones, as skin tones are predominantly made up of these. Use RGB values as a guide and starting point. Take advantage of the eyedropper tool to analyse the current settings and choose a reference value for further editing. The lighter the skin tone, the higher the RGB values. In general, the rule is the highest factor is red, then green, followed by blue.

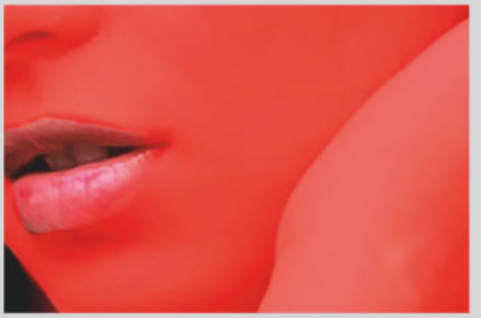


Skin colours in Capture One

How to achieve natural-looking skin tones in Capture One



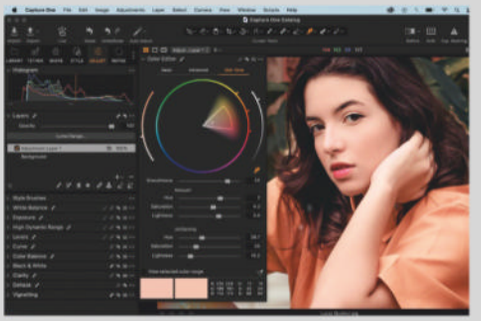
1 Customise your workspace Drag out the colour editor so you can get an overview of all the settings. Select the skin tone option to access the fine-tuning tools.



2 Add a layer Avoid adjusting the other parts of the photo by creating a new layer and masking the area with the help of a brush. Don't forget to remove any unwanted areas.

3 Select target tone Hide the mask and then use the picker tool to choose your preferred skin tone. The colour range selection tool will then adapt your reference.

4 Use amount sliders These settings allow you to adjust the overall skin tone within three features. Try different settings to get a feel for your preferred references.



5 Adjust the uniformity It is important to find a balance between natural and uniform settings. Take care not to push them to the limit, otherwise it will look artificial.

6 Analyse results With the before and after option you can compare the original with the final result. Check whether applications have been used too intensively.

CREATE BALANCED PHOTOGRAPHS

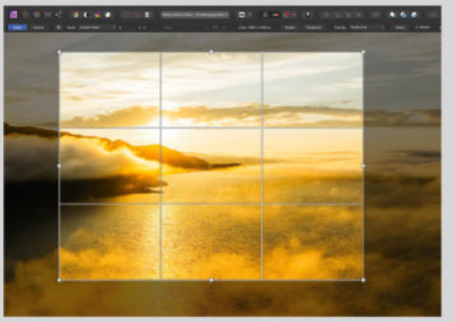
Use powerful cropping tools to improve the impact of the subject

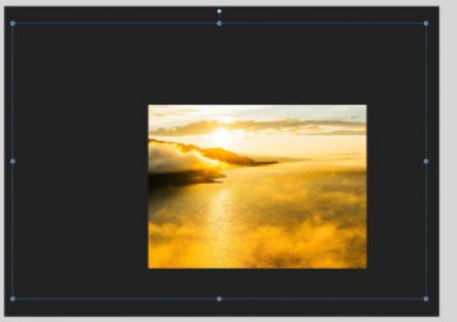
In post-processing, there is one important factor that influences the overall harmony of the shot – and that is the crop. Cropping is a powerful tool that can make or break your image and used correctly, we can eliminate any distracting elements in the shot, and direct the viewer's gaze and attention to the main subject. This tool can allow new perspectives and transform your photos into results you may not have expected.

The crop tool must be used with care, especially in portrait and fashion photography, as cut-off elements can impact the end result. Cropping images should be handled strategically – keep the ratio of your intended media platform in mind when doing so.

Cropping with Affinity Photo software

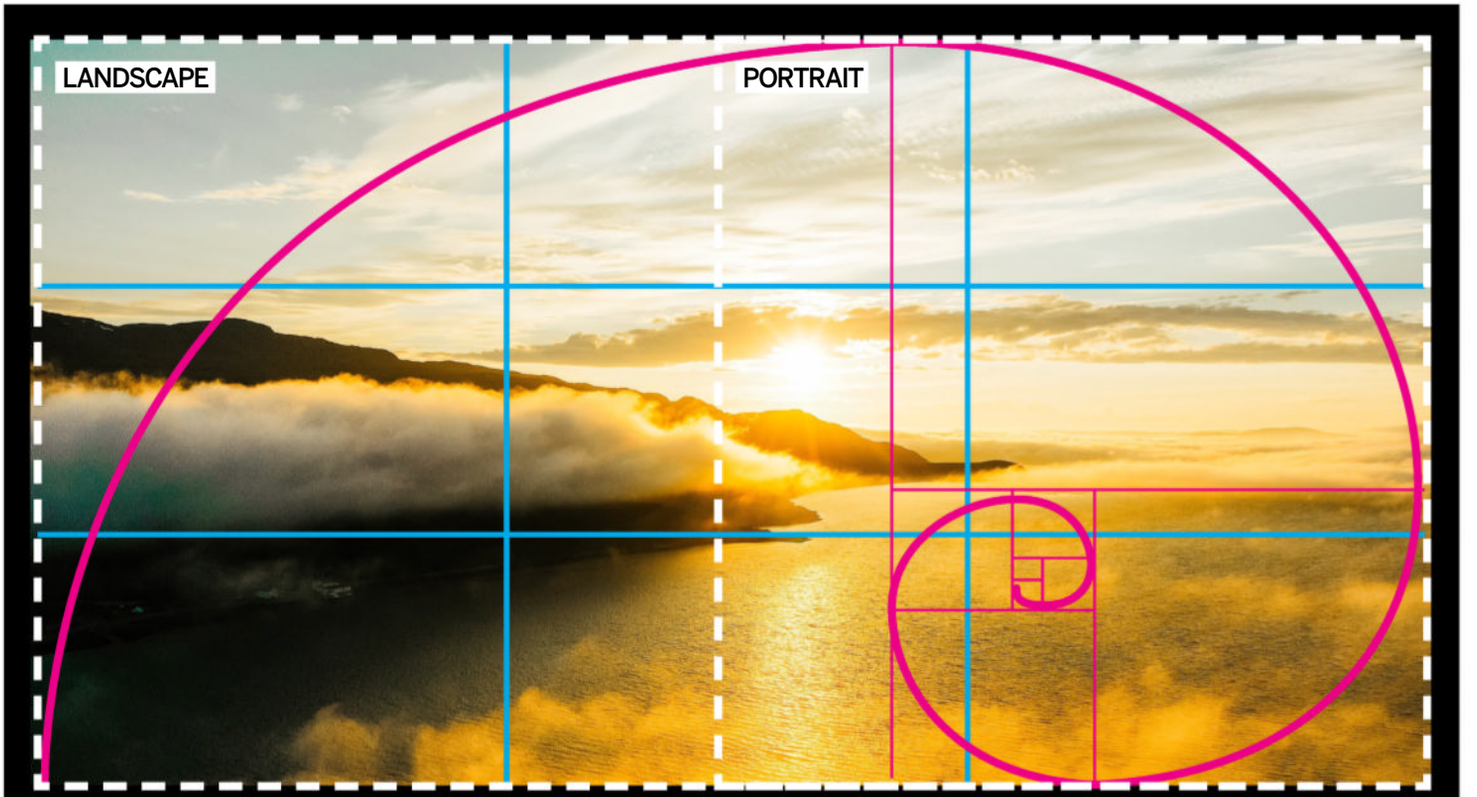
Experiment with ratios to reveal compositions non-destructively





GO STRAIGHT IN
Unlock the background layer and select the custom ratio mode to stay in your preferred aspect ratio. Focusing on the main subject, use the crop tool and create a section. Once you have found a suitable crop, apply the settings.

GAIN VISUAL OPTIONS
By zooming out of the photo, the outline of the original file becomes visible. Select the move tool and then position the image within the set aspect ratio frame. With the help of the anchor points, it is now possible to resize the photo.



Crop right Use composition guidelines to achieve harmonious framing

1 Rule of thirds When photographing, main subjects are often placed in the centre. To change this common pattern, horizontal and vertical lines are inserted to split the image in three parts. The main subject is placed along at least one of the four intersections to create more tension.

2 Fibonacci spiral Orientate towards organic forms and place the main element at the end of the spiral. The composed structure directs the viewer's gaze through the picture. This composition is variable, so exploit its potential by mirroring or rotating the spiral to adjust your photo.

3 Landscape/Portrait format Think about whether the original orientation of the photograph supports the statement and creative characteristics. By trying out different formats, you will gain new perspectives and the potential impact of the photo can be changed and improved.

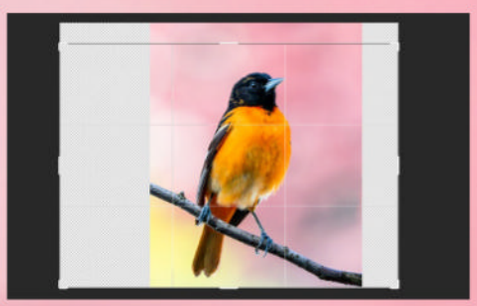
Extending backgrounds

Benefit from content-aware functions to expand or avoid the loss of pixels

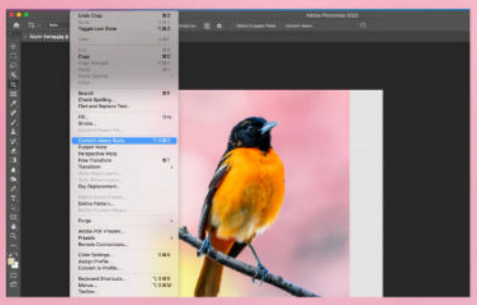
What if your original image was shot in portrait format and now you need to use it in landscape format on a website, for example? Thankfully, various editing programmes offer content-related solutions. These functions are especially recommended for photos with natural or smooth backgrounds.

Photoshop offers two helpful actions. The content-based cropping function can save a lot of time during editing. It is only one click away from filling in small gaps left when the photo has been straightened. If more extensive enhancements of image sections are required, then scaling comes into play.

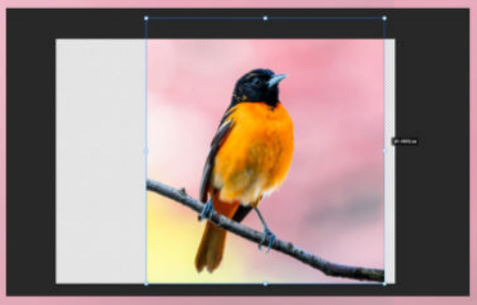
"Photoshop's content-based crop function can save you a lot of time during editing"



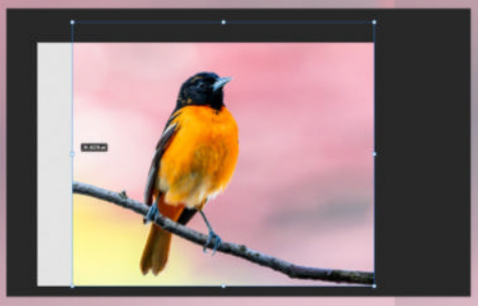
1 Find your ratio Create a copy of the background layer and keep working on the new one to allow you to come back to your original if needed. Select the crop tool and adjust it to your required aspect ratio.



2 Select settings Go to the edit menu and select the Content Aware Scale tool. A transform box with eight anchor points will then appear in a frame around the photo.



3 Start the transformation Use those anchor points to adjust the size of the image. While doing this, it is important to keep the shift key pressed to keep the photograph's original aspect ratio intact.



4 Avoid distortions While extending the box, keep an eye on your main subject. If scaling reaches its extent the subject can suffer. If this happens, move the sliders back and repeat until all areas are filled.

SHARPEN WITH STRATEGY

Use these powerful tools to bring out maximum detail

Sharpness is an effective creative instrument that can help direct the viewer's gaze to certain aspects of the photograph. Every editing program offers various methods for sharpening, but to be able to use these functions to their full potential, different procedures must be considered.

The important rule here is that more is not always better. Extreme sharpening can cause unwanted noise and, especially in bright areas, halos or lines. If every element within the image is presented in absolute sharpness, the viewer's eye is overwhelmed and irritated by the unnatural detail. In addition to the sharp elements in focus, human vision also perceives out-of-focus subjects. Too often, this fact is not taken into account during post-processing and otherwise outstanding work loses depth.

Be clear about the best use of sharpness in your specific photography and consider how blur can support this. By combining both elements, you can take your images to new visual heights.

ZOOM IN

While sharpening, always keep in mind to view images at 100 percent size on the screen. Choose suitable cut-outs that show detailed elements and give guidance about the intensity of the sharpness.

Sharp focus
With the strategic use of sharpness and blur, you will be able to take your photos to a new level

Output sharpening

Use formatting tools to ensure the quality of your photos wherever they are displayed

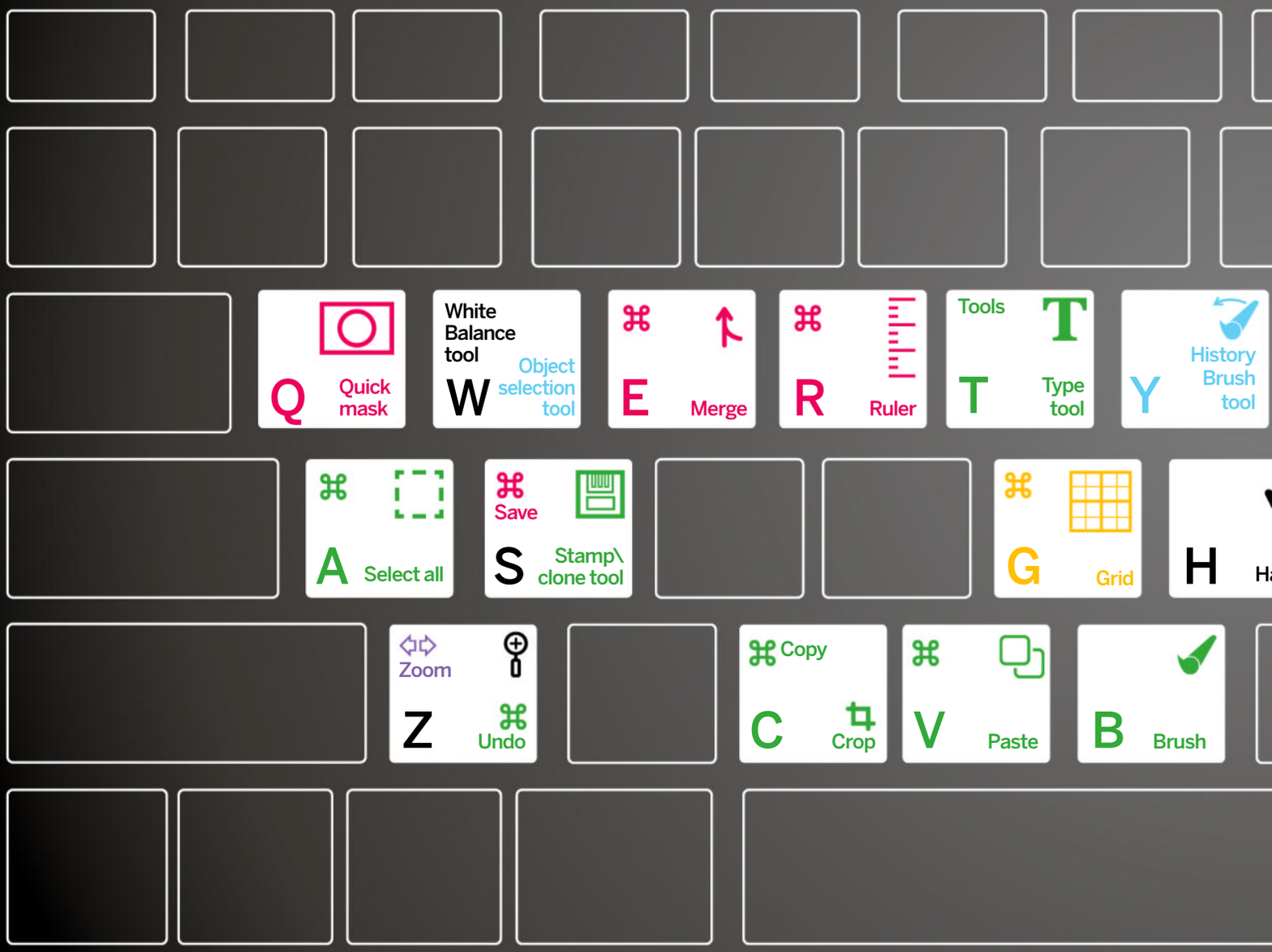
Your final images must be adapted for the format in which they are being published, whether it's in print, on a website or on social media. This important step is often neglected, yet the procedure can be done with just a few clicks. By formatting the image into a smaller size, sharpness often decreases and important details are lost. To solve this problem, post-processing programs such as Adobe Lightroom have quick aids that make the process fast and simple.

Prepare for web and print

Format your images for web or for print the quick and easy way, using tools in your post-processing software

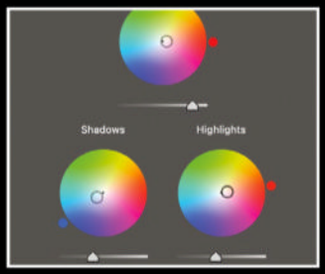
When formatting your photo for use on a website or on social media, click Export and choose the file size. To achieve the best quality results, you should familiarise yourself with the size guidelines of social media platforms – these programmes reduce the photo quality if the file does not meet their criteria. If you are printing your image, go to the Output Sharpening section, and specify whether you want screen, matte or glossy paper. The last step is to select the level of sharpness. In most cases, the standard mode leads to the best results. For more settings and an enhanced range of options, install a plug-in such as Nik Sharpener Pro.

SAVE TIME Learn these shortcuts to optimise image results

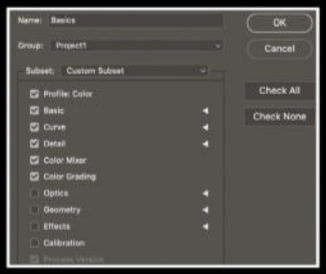


Reduce your workflow These shortcuts can help reduce the time you spend editing

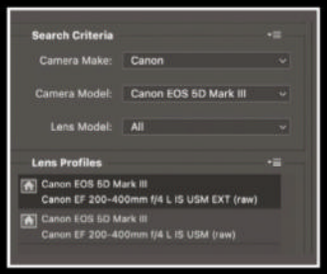
CUSTOMISE WORKSPACE
Work out which functions you use most often and add them. Create separate workspaces for specific editing focal points to be able to find your settings at a glance.



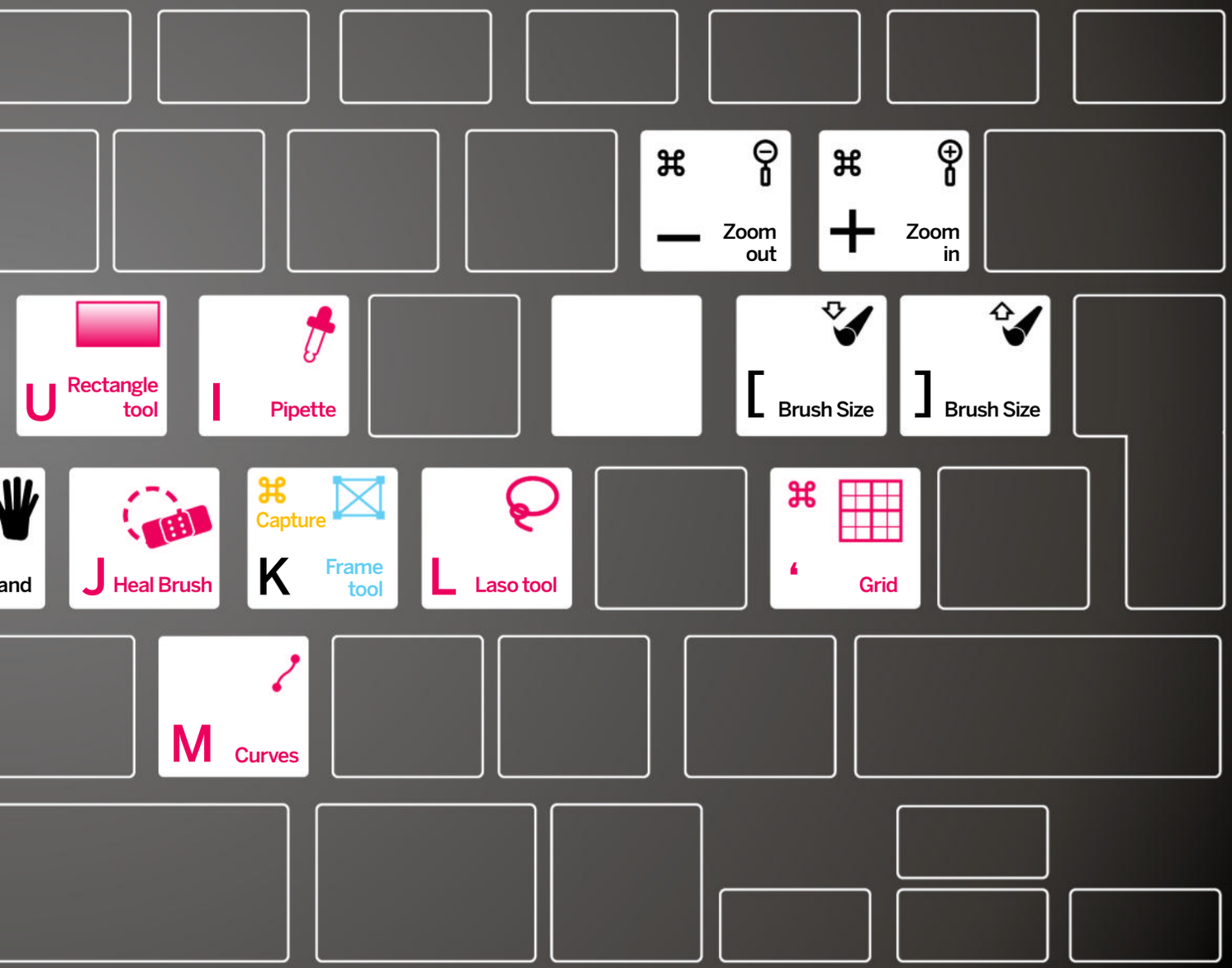
CAMERA RAW FILTER
In Photoshop, other photo formats can also be converted and adjusted with the help of this filter. Take advantage of the intuitive and rapid basic corrections.



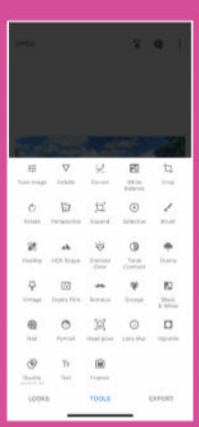
SYNCHRONISED EDITING
When editing multiple images, save the previous settings as a preset. This procedure is ideal, particularly if your pictures are part of a set or taken under the same conditions.



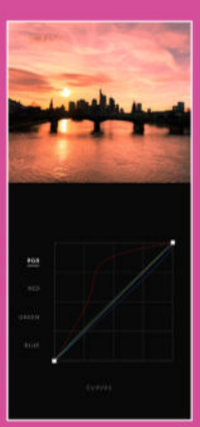
LENS CORRECTIONS
By adding specific equipment details, such as the camera make, model and lens, different software programs can adjust these settings to improve your results.



Edit on the go Some effective editing tools for social media



SNAPSEED
The all-rounder app is perfect for optimising basic settings such as white balance, contrast and cropping. With special tools for portraits, you can enhance and highlight elements.



AFTERLIGHT
Pro tools in Afterlight, such as curves give you more control over the RGB tones. Use the selective colour adjustments in hue or saturation to adjust images according to your visual preferences.

ADOBE LIGHTROOM
Correct geometric lines in seconds with the automatic straightening function. In addition, you can adjust the settings yourself along two parallel lines to adjust the photo to your needs.

ADOBE PHOTOSHOP EXPRESS
Remove objects precisely with the Spot Healing tool. Select unwanted elements, and you can change the size and hardness of the brush to get as much control as possible.

Pictured
Shore thing
The coast is littered with interesting marker posts, structures, sea walls and railings that, when isolated, can create striking minimalist compositions

PROJECT

WORK WITH FILTERS

Ross Hoddinott explains how to use accessory filters for natural water motion, creating artistic-looking results when you visit the coast

Difficulty level: Intermediate
Time taken: 1-2 hours

Few landscape enthusiasts can resist the lure of the coast. The sea is full of motion and drama – every day the tide washes the beach clean, revealing a fresh canvas for photography and producing endless photo opportunities.

The coast is also home to rocky sea stacks, piers, lighthouses, slipways, breakwaters, lidos and other highly photogenic objects. While these types of structures can work well as part of a wider view, you shouldn't overlook the potential of using a longer focal length to isolate key points of interest, using water motion to provide the drama.

Onrushing waves will add a sense of movement, energy and flow to your shots, although achieving the most eye-catching result depends on you selecting the right shutter speed. Timing is also important – trigger your shutter too soon or too late and you won't capture the best of the action. So, what is the perfect shutter speed? Unfortunately, there is no golden formula. Much depends on the wave action and the effect and result you desire. A speed in the region of 0.5sec to 2sec is often a good starting point when you want to capture texture, detail, and chop – that's long enough to achieve an intentional and creative level of movement but also short enough to retain recognisable texture. For more extreme effects, when you wish to render the water smooth and milky, an exposure upwards of 15-seconds is the best option.

To achieve creatively long exposures, you will either need to shoot in low light or use filters. Neutral Density (ND) filters are available in a variety of different densities and allow you to achieve slow shutter speeds regardless of the light. They are a great creative tool and if you don't own any currently, I recommend you invest in at least one. Personally, I always carry 4-, 6- and 10-stop versions in my filter pouch. A choice of ND filters will allow you to control motion and produce whatever effect you want in almost any shooting situation.

What you'll need

- Digital SLR or mirrorless system
- Short telephoto-zoom (in the region of 70-300mm)
- Adobe Lightroom
- Sturdy tripod
- ND Filter

Shooting steps

1 Consider tide height The tide is an important consideration, not only to ensure you stay safe, but because it will hugely influence the look of your shots. Some locations suit a low tide, while high water works better for others. Use an app, such as AyeTides, to guide you.

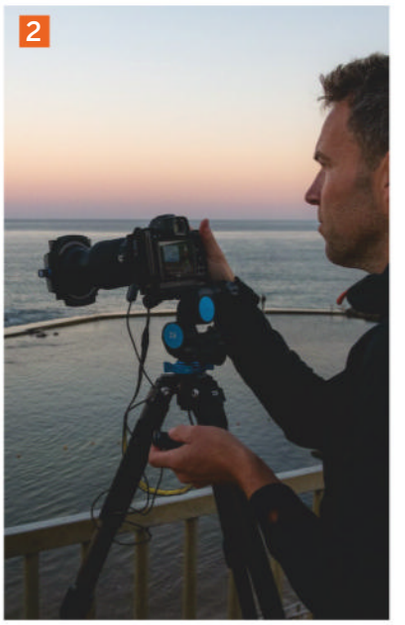
2 Arrive early Arrive at least an hour before the tide is at its optimal height. Air pressure and wind direction influence the tide and wave motion, so if you get your timing wrong you will miss the opportunity. Arriving early also allows you time to set up and identify the best shooting position.

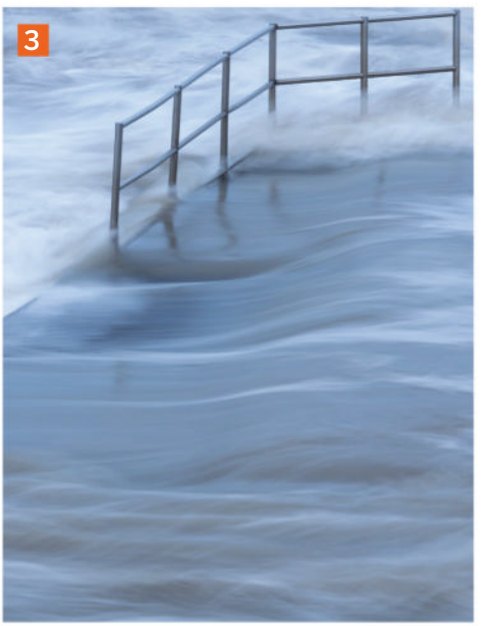
3 Find a composition Coastal abstracts are often less obvious than conventional landscapes. Look for key points of interest that you can isolate using a longer lens, such as a tide-marker, groyne or steps. Consider excluding the sky from the frame to isolate your focal point, in this instance, the metal hand railings.

4 Attach an ND filter Unless you are shooting in low light, attach an ND filter to prolong the shutter speed and creatively blur wave motion. Try different densities, comparing their effects before deciding which to use. If your filter proves too strong, but you don't have a weaker version, increase ISO to refine the exposure length.

5 Switch off long-exposure NR For more extreme effects, with shutter speeds over 15-seconds, switch off Long Exposure Noise Reduction. This reduces noise by taking a dark frame and subtracting noise and hot pixels but doubles the length of time it takes to create a photo. Noise reduction is normally better applied during editing.

6 Focus on timing When the look and flow of wave motion is a key ingredient, timing is important. Fire the shutter remotely using a cord, device or app and take a series of shots. Often the best motion occurs when water is draining over the subject or when waves collide.





The setup

Use ND filters like a pro

AWB will neutralise your filter's colour cast

Although extreme ND filters with a density of 6-stops or more can fool TTL metering systems, most modern cameras operate effectively with the filter in place and will automatically and correctly compensate for the filter's density without you needing to apply any additional compensation.

However, guided by your camera's Live histogram, apply exposure compensation if required – if your camera lacks a Live histogram, replay your most recent image and assess the corresponding histogram. Underexposure is the most likely error, so be prepared to apply positive (+) compensation – or simply select a longer exposure if shooting in Manual Exposure mode.

Most modern ND filters are almost perfectly neutral but be aware that some filters display a warm or cool colour cast. These colour shifts can prove pleasing visually but they are easy to correct if you wish to. Auto White Balance will normally neutralise a filter's cast quite successfully – or you can simply adjust colour temperature and tone at the editing stage.

Edit the shot

1 Import into Lightroom Import your images into Lightroom and identify the best shots from the sequence. Closely scrutinise image sharpness and discard files where the combination of timing, shutter speed and movement haven't been successful. Flag the best images by clicking P – or use Lightroom's star rating system, so you can easily return to your favourite files.

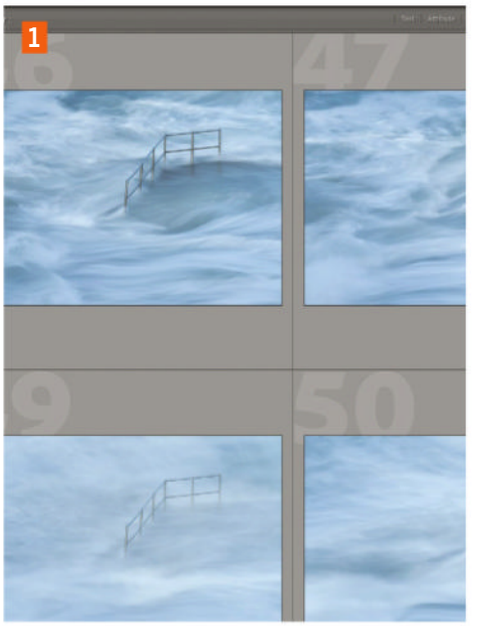
2 Make your Selection When shooting water motion, you will typically have a sequence of shots – every image is unique. Identifying the best files to edit can be tricky but trust your instincts. Look for the best combination of motion, contrast, and texture. To help you decide, compare your images side-by-side. Do this by selecting two images and clicking the Compare View button on the toolbar or using the keyboard shortcut C.

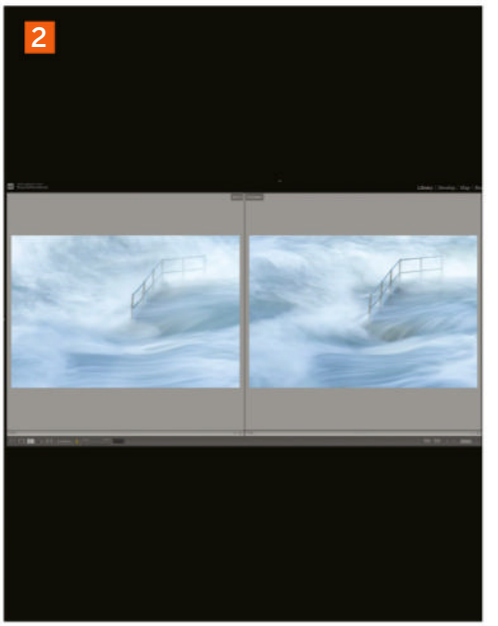
3 Apply basic exposure adjustments Long exposure seascapes often lack contrast straight out of the camera – particularly abstract compositions where the sky is excluded. As a result, the histogram may be narrow. Adjust the Black and White sliders to stretch the histogram and achieve a more pleasing level of contrast. Adjust Highlights and Shadows too if necessary to achieve correct exposure. To enhance texture, consider applying a small amount of Clarity or Dehaze.

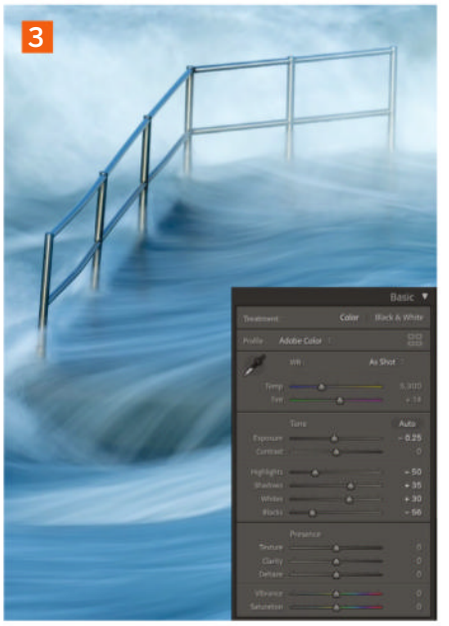
4 Colour temperature Remember, a technically correct White Balance will not always produce the most visually pleasing result. In this instance, a cooler temperature suited the subject and water motion best. None of the WB presets worked, so I adjusted the Temp and Tint sliders to create a bluer hue to the shot, which conveyed more mood.

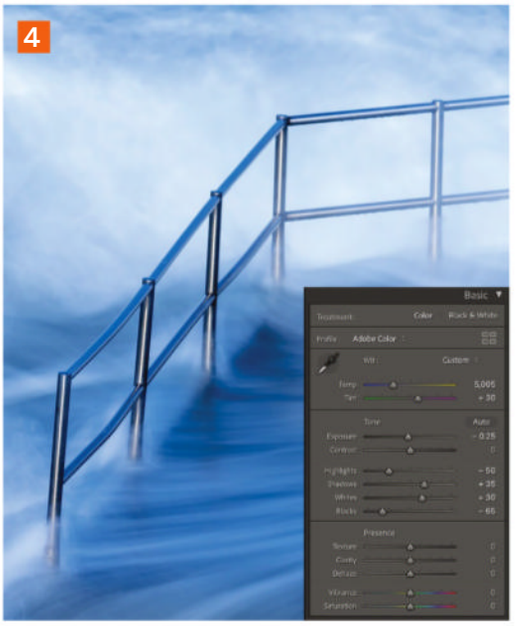
5 Localised adjustments Radial Gradient masks can be useful for applying localised adjustments. In this instance, the breaking waves and spray behind the hand railings appeared too bright, so I clicked on Masking (Shift+W) and overlaid an oval-shaped mask in this area. I feathered my selection and then adjusted the Highlights slider to reduce the water's brightness. Radial tools can be used to effectively dodge and burn.

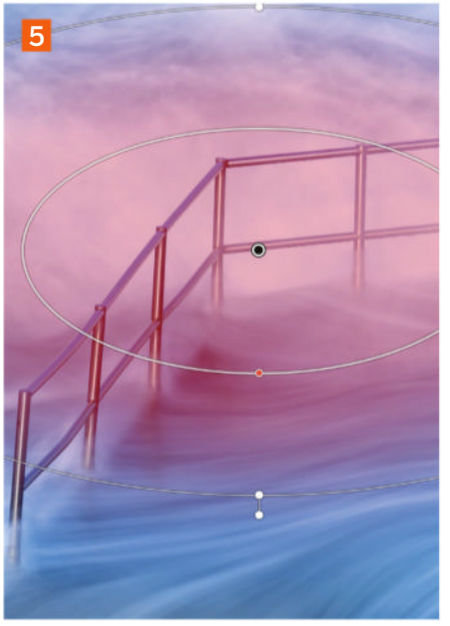
6 Export This style of shot typically requires a few minutes of editing. However, it is surprising how relatively small, subtle tweaks can collectively transform a shot. Use the Heal Tool to tidy up any dust spots, apply sharpening and noise reduction (if required), then click File>Export. I usually export my images as TIFFs, but you may prefer to archive JPEGs, as they require less memory.

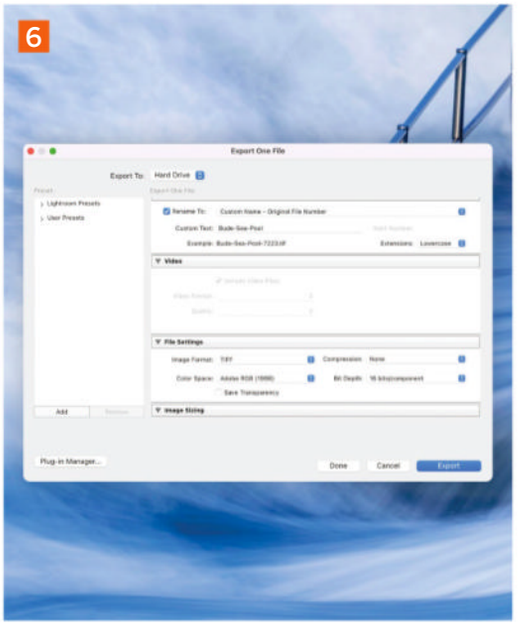












BEFORE

Pictured
Abstract seascape
Using an ND filter to generate a creative level of water motion can produce eye-catching results

AFTER

Pictured
Simple editing
Simplicity and minimalism often suits this style of photography, but processing brings the image alive, providing contrast, depth and detail

Pictured
Flower power
The effect of overlapping several photos appears intricate, but is easier to achieve than it looks

PROJECT

DOUBLE TAKE

Learn to capture and merge several images into one, using editing software to create striking abstract portraits

Difficulty level: Easy
Time taken: 2 Hours

As a technique, double exposure photography is nothing new. It has existed since the early days of film when, traditionally, the same slide was exposed twice to produce a superimposed image. In the digital age, the effect can be reproduced using a camera with a dedicated Multiple Exposure mode.

However, if your camera doesn't have a dedicated mode, or you want more creative control over the final image, you can also mimic the effect in Photoshop. In this tutorial, you'll discover how to shoot the best initial portrait image for this technique, as well as how to edit the two images in Photoshop for a striking and abstract result. One of the great things here is that you don't have to shoot your portrait and overlay images at the same time. If you have the perfect fill-in image within your archive, it's easy to have a go – provided you have a camera with manual shooting modes and a willing subject.

Follow this step-by-step tutorial, as we go through both the shooting and editing steps you need to merge two photographs together, with the help of some simple Photoshop blending modes.

What you'll need

- DSLR or mirrorless camera
- Natural light
- Photoshop
- A willing model

Shooting steps

1 Set up camera Switch your camera to Aperture Priority using the top dial. Select centre-weighted or spot metering – an easy way to expose the shot correctly for the subject. Make sure you're using a suitable lens, a 50mm prime works well for this type of portrait shot.

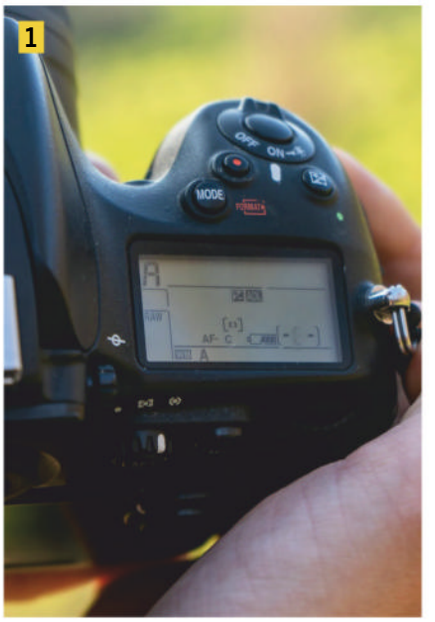
2 Dial in settings Set the ISO to the lowest value possible. You'll be shooting against a bright background, so shouldn't need to raise it any higher. Next, select an aperture of around f5, ensuring that your model's whole face is in focus. If the exposure is too bright and the shutter too fast, narrow the aperture.

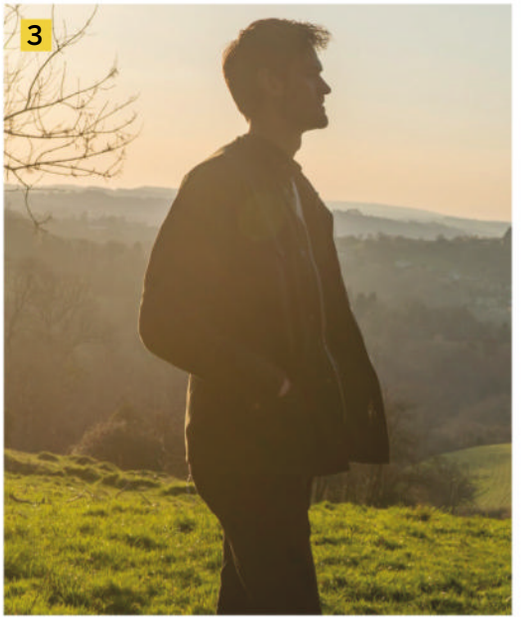
3 Arrange your subject Position your subject against a bright background, such as the sky on an overcast or clear sunny day. They should ideally be side-on to you – a profile shot is more successful than a front-on face, as their features will be more identifiable in silhouette. Move yourself to avoid any messy background scenery, such as trees.

4 Set the focus Lenses can sometimes struggle to focus properly when they are pointed at a bright light source, such as a white sky. If you find this is the case, switch to manual focus on the lens barrel and use the focus ring to ensure your subject's face is sharp.

5 Frame and shoot You can use the viewfinder or Live View to compose, but take a few test shots once you've set up. Whether you shoot portrait or landscape, check for distracting elements in the frame. Dial in positive exposure compensation if necessary, ensuring the camera overexposes the sky.

6 Shoot fill image You can choose anything for the second photo but natural subjects such as leaves and flowers work best. Shoot a scene with interesting shapes or textures to effectively fill your silhouette image. Alternatively, select a pre-existing image you can use to overlay your portrait shot.





SUBJECT DIRECTION
Shooting on an overcast day is ideal. If the sunshine is bright, face your model slightly away from the sun to avoid them squinting

LOW ANGLE
Crouch down for a lower shooting perspective to achieve a clean background that's free from distracting elements

CHOOSE YOUR OPTIC
A dedicated portrait lens works well for this technique but it needn't be expensive. We used the Nikon 50mm f/1.8 G

The setup

In-camera technique

Use a camera to create the effect without editing software

Modern cameras often have a myriad of extra functions buried in their menus; most high-end Nikon and Canon types enable you to perform the double-exposure technique in-camera. On a Canon, navigate to the Shooting Menu, scroll down to find Multiple Exposures and press OK (Enable or Disable on a Canon system). From there, you can decide how many frames you want to shoot, and how you want the camera to expose your shots. On the Nikon D800 we were using, the feature is called Image Overlay. This enables you to pick two RAW images from the card, and the camera will convert them into one image for you instantly.

Editing steps

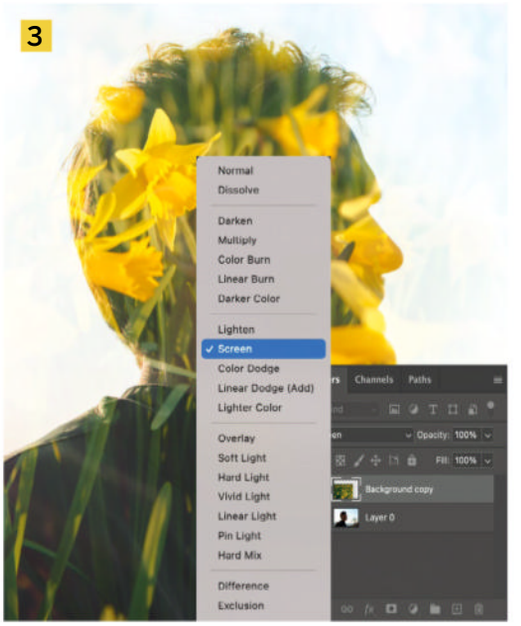
1 Get started You can edit your portrait in the usual way in Camera Raw, but we opened it up from Adobe Bridge straight into Photoshop. Right Click on the layer and hit Layer From Background. Then go to Image>Adjustments>Levels to increase the brightness and contrast of the portrait.

2 Import second image Open your fill image, go to Select>All and then Copy. Open your portrait shot and paste one image on top of the other. Go to Edit>Transform to Rotate, Scale and Flip your image (if needed) so that it covers your portrait. Use the Clone tool to remove distractions from either layer.

3 Blend and adjust Select the top layer and change the Blend Mode to Screen – a great Blending Mode for brightening images. Once you have your basic double exposure, you can use the Move tool to reposition and resize the fill layer over the portrait, paying attention to what's covering the features.

4 Bring out details Create a Levels or Curves adjustment layer from the Layers palette to bring out detail in the mid-tones, or alternatively, use the Burn tool to darken the edges of your portrait and create a bolder outline to the face. Desaturating the entire face layer will produce a more subtle result.

5 Experiment Once you have got to grips with the simple processing steps, try out new fill images – nature scenes such as this landscape are effective. Move the 'fill' image around to fill your portrait, and tweak the contrast so that you start to see more and less detail in the sky portion of your portrait.



Right
At the rock face
Merging two shots together is a great way to add intrigue and interest. The blending process is straightforward, especially if you shoot portraits against a clean background


X2 BEFORE
AFTER

TOP PRO STYLES FOR PRODUCT PHOTOGRAPHY

Master the art of product lighting and styling for incredible commercial shots and transferable skills

We're blessed with a rather unique vantage point for viewing the photography industry on a photo magazine, and as such are often asked which genres we believe to be the most challenging. This is a highly subjective topic but the expected answers are likely wildlife photography, sports imaging or any assignment which requires us to shoot in challenging environments. It might come as a surprise therefore that we often cite professional product photography as somewhere near the top of the list.

The parameters for such an assessment are tricky to define, but for the variety of lighting styles required, exposure expertise and overall technical and practical challenges, product imaging at the high end is nothing short of art. It is for this reason that it is a perfect genre in which to sharpen your general photography skills. Problem solving, set design and software craft all come into play on a daily basis for a commercial product photographer, and these vital techniques can be applied in almost any area of a photo business.

For the purposes of this masterclass we have rounded up some of the most current styles seen in advertising and brand product imaging today. Importantly, most of these looks can be achieved using minimal equipment and without the use of a dedicated studio space.

After portraiture, product photography is one of the most accessible forms of paid work a new pro can undertake and it can develop into a lucrative commercial business. Happily, in many cases, it is also creatively satisfying and very fun!

Pictured
Complexity made simple
High-end product shoots can be incredibly complex and creative, but the aim is always to produce a well-defined, clean and uncomplicated depiction of an object

SPLASH OF COLOUR
To break up the otherwise empty periphery, the petals add contrast while staying on-brand.

ALMOST SHADOWLESS
Window light from camera right and diffused flash from the left reduces most shadows to soft impressions.

SHOOT HIGH-KEY

Flood your shot with light for an airy, modern look

A professional commercial photographer, working on a large ad campaign, might find themselves shooting hundreds of individual items, each shot requiring specific lighting and styling demanded by the client. Time-saving therefore becomes of the utmost importance. Simplicity is often best.

One of the most common high-key looks for product shots makes use of a seamless white background. It's a tried and tested method of achieving a non-distracting backdrop and easy selections for later software extractions, should these be necessary. However this might not fully convey the thematic influences of the product and sometimes a little extra detail goes a long way to drawing the eye of potential customers.

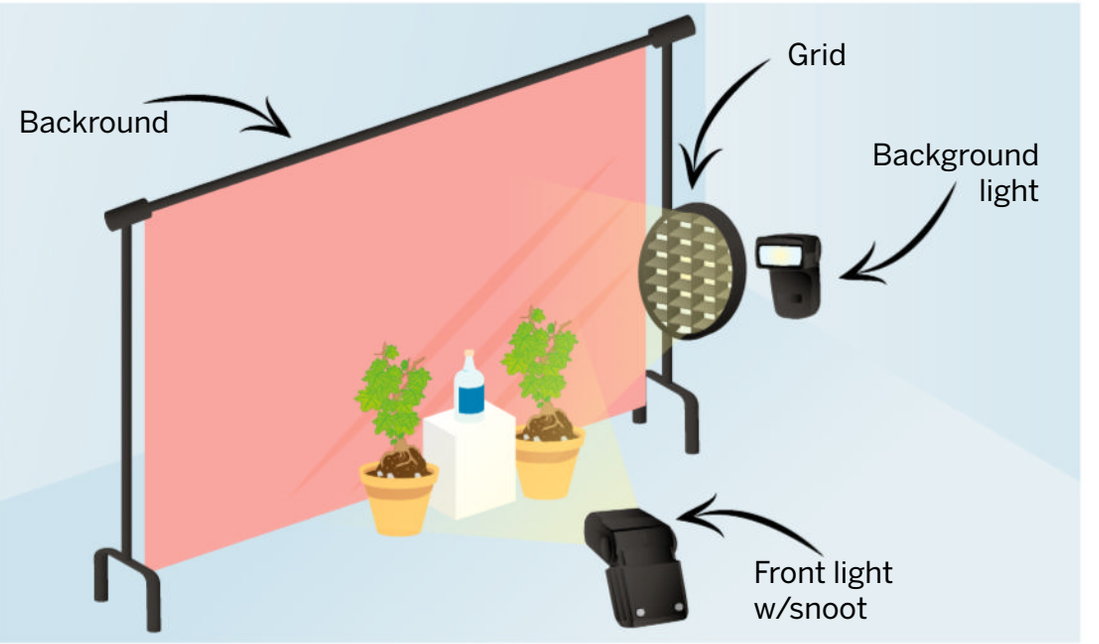
High-key refers to the dominance of brighter tones in the shot, which produces a clean image. This allows good contrast while introducing an airy atmosphere, setting off products with a modern feel or with geometric shapes. It offers clean surroundings for clean lines. This type of lighting can be achieved by mixing natural window light with a reflector on the opposite side of the object, creating a balanced exposure.

Colour shifts can be a problem when using window light however and ugly reflections are common with metal or glass products. In these cases, setting up a light tent, or simply surrounding the product with light sources on all sides produces a wrapping and soft style, with minimal shadows.

High-key shots don't need to be limited in colour palette. While a dominance of white can appear contemporary, overlighting a chroma background can have intriguing effects which suggest a setting, without additional set items actually being introduced to the scene.

Most critically, when setting the lighting for your shot, consider the branding of the product. The tone in any shot is significantly affected by the amount of light present and this has to make sense for the product.

SUBTLE HIGH-KEY
The airy look is achieved through bright negative space which contrasts with the dark box but is not entirely seamless.



Wrapping light

Create a balanced distribution of highlights and shadows

Directional light has a place in product imaging, but when you want to limit depth, to focus viewers on a logo or label for example, shadowless light is a solution. To soften light, move the source, diffused with a softbox, as close as you can to the subject without it showing up in the frame. Next, adjust the brightness with power output to avoid overexposure. This causes organic refraction of the light, and a visible 'wrapping' of illumination around the subject, reducing strong shadows.

ENVIRONMENTAL PRODUCT SHOTS

Place your product in a setting which suggests a relevant environment

A technique many pro commercial advertising photographers use to communicate the target customer for a product is to capture the subject in a thematic setting. This encourages an emotional response in the consumer, who identifies with certain elements of the shot, from the lighting to the colour palette and background detail. Environmental product shots afford us the opportunity to add soft subliminal cues, suggesting the branding to the viewer without directly hard-selling it to any demographic in particular. This works as potential buyers of the product feel like they have made a decision themselves, based on how they perceive the product fits into the environment portrayed.

The great aspect of product imaging is the freedom to control context; the tight framing means we have complete flexibility to arrange the scene, which can be shot inside or out. Building a set in the studio will provide reduced time pressure, since the light won't change, and we can place each component exactly where we want it. This can be more expensive and time-consuming however, whereas taking a product on location gives us an endless variety of pre-existing backdrops.

The aim of any environmental shot, whether it is a portrait, still-life or product, is to make the subject seem like it fits in with its surroundings. The light, colour and texture need to seem compatible, unless there is a creative reason to push a juxtaposition of theme. This once again links back to the idea of brand continuity, but we must not forget the aesthetic elements either. The shot still needs to be attractive to the eye, taking into account colour relationships and composition.

Key characteristics

NATURAL BOKEH
Spraying vegetation with water added droplets to form realistic blurred highlights adding to the 'glittery' product branding.

OVERLAPPING ELEMENTS
Make the product interact with the environment by creating layers to put detail in various planes.

COLOUR DEPTH
The organic greens contrast pleasingly with the bold product colours and form an unobtrusive background.

Control DOF Use depth of field to modify context

When shooting an environmental image, focus control is critical. The aim is to use the surroundings to further the tone of the product, but the subject needs to stand out as the most important area. Shallow focus can make use of just the colour palette of the location, while stopping down or focus stacking can reveal just enough detail to hint at the wider environment. In this forest scene we chose not to introduce too much focus, due to the high frequency detail becoming a potential distraction.

Create a forest sunset Use a two-light setup to produce the impression of an all-natural sunset effect

1 Elevate the product One challenge of shooting on location is room to manoeuvre and place equipment. Find a flatter surface which is several feet higher than the surrounding terrain so you can easily get behind the subject and re-dress it if necessary. Compose the shot to leave space for text.

2 Add the elements A great way to make the product feel continuous with the novel environment is to add in elemental components. In this case we sprayed a fine mist of water on the glass bottle to produce beads of what looks like condensation, suggesting the humid climate.

3 Position fill light Place a main light in order to fill shadows on the front surface of the product. It is better to place the subject out of direct sun and then control fill artificially to ensure the sunset effect appears natural. Diffuse with a softbox, in our case a speedlight model.

CONSISTENT LIGHTING THEME
The sunset style was furthered by the use of flash to add convincing catchlights in the bottle.

Lighting continuity

Set the overall tone of your shot with environmental lighting

Similarly to when shooting elements for a composite image, ensuring credible lighting is the best way to solidify the message of an environmental composition. While we aren't blending elements together, it is important to set up artificial lighting to better reflect the ambient conditions. Where we might be shooting a sunset theme for example, adding a flash to backlight the subject adds a wash of light reminiscent of low sunlight naturally illuminating the environment, but in a controllable way. For a firelight effect, even if ambient light is present, supplementing this with a gelled flash can make the glow stronger and introduce colour continuity too.

4 Add backlight Place a CTO (Colour Temperature Orange) gel on a second flash and put this behind the subject, at a 45° angle to the lens. This light will be your 'sun'. Don't worry about the flash head clipping on the histogram, but avoid losing important detail or colour in the product.

5 Shoot multiple directions The logo or brand titles are often the most important part of a product, so be certain that these areas are legible. Capture multiple shots with the fill light in various positions as frames can be blended in post, creating the perfect lighting structure.

6 Create flare To push the summery look in our shot further we added water droplets to a protector filter, which turned into flare bokeh when hit by the backlight, firing into the lens. Take shots with and without the filter attached for the option to control or remove this.

SHOOT CONCEPT IMAGES

Focus on creative shots which embody the reason to buy a product

Environmental shots are perfect for demonstrating where a product may be found or the elements which inspired its creation. In some cases a less literal approach is best however. For products whose target audience is more niche, but where this may not be desirable to feature in promotional material, such as gender-specific or price-bracket targeting, a conceptual style can be the answer. Where a brand knows very clearly who they are aiming a product at and where those people are aware this applies to them, it is a good idea to create a shot with subliminal cues.

In other cases, a concept can seem more refined and classy. Many watch adverts and fragrance commercials employ this technique, the idea being that the target buyer need not be spelled out. The trick is once again being able to identify the ideas which relate to the product brand, so the design philosophy is evident. This type of product imaging is very creative, but it is also easy to deviate from the branding guidelines, so make sure you are sticking to your brief, be it from a client or self-imposed.

Thematic backgrounds or surfaces form a big part of this style of product shoot

Easy creative backgrounds

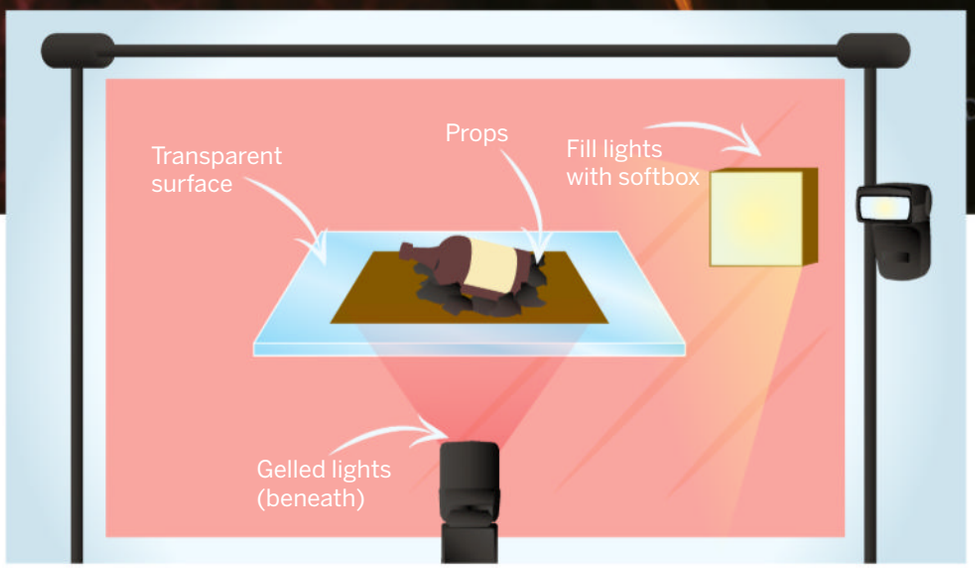
Use household items and minimal lighting to introduce some sparkle

1 Separate the elements Place the subject on a non-reflective surface, to avoid unwanted highlights and colour casts, and support a crumpled sheet of aluminium foil behind it. Ensure the bottom of the foil is not visible to create the impression it is seamless. Lower the camera to subject level.

2 Focus the subject Shooting at 90° to the product will extend depth of field without stopping down excessively. Switch to manual focus and zoom in to fine-tune the focus position over logos or key features. We used a 60mm macro lens to get closer to the watch face.

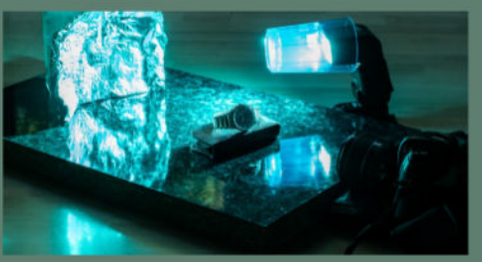
3 Turn out the lights To ensure we have full control over the light and colour in the shot, with no ambient interference, turn out all of the room lights. This will mean we can control image brightness through flash intensity and distance between the source and subject.

Pictured
Cinematic theme
Many high-end product shoots include one of the elements as a theme. Here we illuminated the scene from below with a gelled flash to create a hot, lava-like appearance. See illustration.



and helpfully, we can often find good props around the average home. Look for wooden desks, chopping boards, kitchen counters and even glass coffee tables. Make note of colour contrasts when selecting a surface and make sure that any additional elements don't contradict the function of the product. Before adding a prop or element to a scene, ask yourself which characteristic of the subject it references and how viewers might interpret what it says about the main object.

4 Place main light To illuminate the subject without throwing too much light onto the supporting surface fire the main flash over the subject, to feather the spread without excessive spill. Here the bevel on the softbox helped, but a black flag beneath the flash will create a sharper beam.



5 Colour the background Fire a second speedlight or shine a strong torch at the foil background to create dazzling and unique bokeh effects. Here we passed the flash light through a coloured plastic cup to achieve a gelled look without additional accessories. Avoid overly bright highlights.

6 Control bokeh styling Vary the distance between the foil background and product, while also experimenting with different aperture settings, to produce a range of sizes of the specular highlights. We also added a spray of water to the foil for greater highlight visibility, without becoming distracting.

TOP PHOTOGRAPHER WINNER: Bruno Ribeiro, Portugal

GuruShots CHALLENGE

MACRO MAGIC

We joined up with online photography game GuruShots to print the winning images from the **Macro Magic** challenge

GuruShots is billed as the world's leading photography game. It's an online platform that gives global exposure to people who love taking photos. GuruShots members start as Newbies and compete with other photographers to win challenges, increase their ranking on the site and eventually progress to 'Guru' status.

Challenges are voted on by Gurus and the wider GuruShots community, and there's a fresh competition brief, such as the Macro Magic challenge, every day.

All the winners receive prizes from GuruShots' sponsors, including Lowepro, Kodak and Lensbaby. For more information, visit **www.gurushots.com**

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David Samuel dos Santos Sousa, Switzerland


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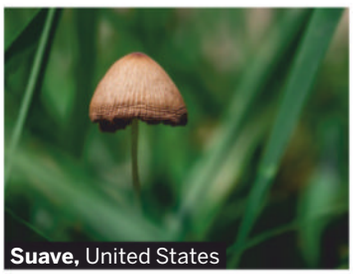
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