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The **Nikon** Camera Book

The independent guide to getting the most from your Nikon

Over
400
tips inside



Master your Nikon • Find the best kit • Edit & manipulate images

Welcome to The **Nikon** Camera Book

Photography is one of the most popular pastimes in the world, and with Nikon leading the way in terms of technology and innovation, it's no wonder that its cameras are trusted by so many photographers. Although many other brands try to nibble at the market share, year on year Nikon remains a heavyweight contender, with a catalogue of cameras ranging from point-and-shoot compacts to professional DSLRs. The Nikon Camera Book is the ultimate guide to getting the most from your Nikon camera, whatever the model. From the newest cameras and lenses on the market, to the accessories that will make your life easier, you'll discover which one suits your needs best. We will take you through advanced shooting techniques across a range of photographic genres, such as capturing coastal landscapes to working wonders with the black and white mode. We finish with essential advice on editing your Nikon-captured images, to give your photos that final touch for maximum impact.



The Nikon Camera Book

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Part of the

**Digital
Photographer**

book series

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Your Nikon camera

A guide to your Nikon camera

We get to grips with the big brand's top-selling models to help you learn more about your camera



Although many brands try to nibble at the camera market share, Nikon remains one of the biggest contenders. Nikon has strategically launched an impressive array of shooters that cover every portion of the market to fulfil the needs of every target demographic. Nikon's D series DSLRs have become a popular choice for anyone from the enthusiastic novice to the seasoned photography professional. Consumers choose Nikon for its reputation for reliability, accessibility, high performance, superb functionality, impressive features and, ultimately, incredible image quality.

The company has come a long way since it launched the first professional DSLR, the D1, in

conjunction with NASA, but it has continued to build a tradition as a name photographers can trust. Today the company retails dozens of models, all exhibiting a variety of specifications perfectly crafted to fulfil the needs of a particular group. The first rung on the ladder for debuting camera users is the beginner or entry-level models, and currently fulfilling this demand are the easy-to-use Coolpix compacts and the Nikon 1 series of compact system cameras. Further up, Nikon have a premium compact offering for those shooters that want a little more power without the bulk and weight of a DSLR camera. Next up is the D3400, which has a built-in guide mode to aid the transition from compact to DSLR.

Then if you want to start taking your photography further you have the D5600, which has a few extra features to help you take more control. Moving along the product lineup is the prosumer model, the D7200, which introduces higher-end technology in a tougher shell. Semi-professionals will be dazzled by the D500, D610, D750 and D810, with the latter having an incredible 36-megapixel sensor. Then you have the option of the astro-specialised 810A. Finally the professional segment is completed by the D5, touting the industry's finest photographic technology.

Across the next few pages you'll find in-depth guides to some of the best Nikon has to offer to help you make the best buying decision for you.

“Nikon has launched an impressive array of shooters that cover every portion of the camera market”





Despite the large size and weight of the D5, it feels well-balanced in hand and the placing of the Nikon's buttons is intuitive

Nikon D5

SRP: £4,000/\$5,500
(body only)

The flagship D5 model from Nikon is as good as it gets, capable of capturing excellent stills and stunning video

Technical data

Model	Nikon D5
Price	£4,000 / \$5,000 (body only)
Web	www.nikon.com
Megapixels (effective)	20.8
Max resolution (pixels)	5568 x 3712
Sensor information	FX 35.9 x 23.9mm
Shutter speed	30-1/8000sec
ISO sensitivity	A, 100-102400 (expandable to 50-3280000)
Exposure modes	P, A, S, M
Metering options	CW, S, M, HW
Flash modes	FC, SS, RS, RE, off
Connectivity	USB 3.0, HDMI type C
Weight	1.405kg
Dimensions	160x158.5x92mm
Batteries	Rechargeable Li-ion
Storage	CompactFlash, Dual XQD
LCD	3.2", 2,359K-dot touch
Viewfinder:	0.72 pentaprism

There's always a lot of excitement with the arrival of a new high-end camera and the release of the Nikon D5 was no exception. The D5 takes over from the D4S as Nikon's flagship camera. This new model is the highest resolution full-frame Nikon camera ever, and it has been built to meet the technological advancements and innovations in the full-frame market as well as meeting the many needs of professional shooters.

There's a brand-new 20.82MP full-frame sensor that operates across a wide native range of ISO 100 to 102400, which can be ramped up to an outstanding 3280000-equivalent, making image capture even in the poorest lighting conditions a possibility. The newly designed sensor improves autofocus, metering and image processing, which ensures that this camera is capable of producing outstanding imagery.

The innovative D5 houses the EXPEED 5, which is Nikon's most powerful processor ever. The new processor is able to harness the vast power of the new FX-format CMOS sensor, exceeding the D4S's 16MP. A second processor has even been included just for autofocus. The new Multi-CAM 20K AF system boasts a huge

153 points, which is a massive three times more than its D4S predecessor. When all of this power is teamed with one of the brilliant NIKKOR lenses the image quality is incredible.

The extremely powerful D5 is a must-have for professionals. It's a solid camera that will withstand years of use from even the most demanding shooter. The D5 has a touchscreen, which lets you swipe through images, zoom into details and much more. The cleverly designed DSLR also has a viewfinder blind, which photographers shooting long-exposures will find to be a valuable addition.

Not only that, but the camera comes with secondary command dials with AF controls that enable the user to effortlessly switch to portrait shooting. There is even a second LCD screen that displays white balance, among other things.

Summary

The D5 matches and may even exceed the Canon EOS 1D X mark II, which is really saying something. There are lots of new features over the previous D4S model and image quality and precision is outstanding.

Nikon D810

SRP: £1,670/\$2,900 (body only)

Does this high-megapixel camera justify its price with quality?

Technical data

Model	Nikon D810
Price	£1,670/\$2,900 (body only)
Web	www.nikon.com
Megapixels (effective)	36.3
Max resolution (pixels)	7,360 x 4,912
Sensor information	35.9 x 24.0mm CMOS
Lens data	Nikon F bayonet mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/8000sec
ISO sensitivity	A, 64-12,800 (expandable to 51,200)
Exposure modes	Auto, P, A, S, M
Metering options	CW, CM, S
Flash modes	A, Fon, Foff, RE, SS, RC, FC, RE-SS Auto, FP
Connectivity	USB, HDMI, NTSC
Weight	880g (without battery)
Dimensions	146 x 123 x 81.5mm
Batteries	Rechargeable Li-ion
Storage	CF1, SD, SDXC, SDHC
LCD	3" 1229K-dot TFT, fixed
Viewfinder:	Eye-level pentaprism SLR

As the successor to the best selling D800 and D800E, the Nikon D810 is hyped on high-end specs ideal for serious shooters, and the camera takes its place as the high resolution option in the Nikon DSLR lineup. It features a 36.3MP FX-format CMOS sensor without an Optical Low Pass Filter for particularly sharp and detailed still imaging. With the addition of the EXPEED 4 Image Processor, performance speed is increased compared to the EXPEED 3 and noise is effectively reduced.

The D810's ISO range starts at ISO 64 for cleaner, better-defined images. You can shoot at up to ISO 12800, or extend the range from 32 to 51200 ISO (equivalent). The level of detail and sharpness, the wide dynamic range and rich tonality in nearly any light is simply staggering.

This model been optimised for video capture, and records in both FX and DX formats. What's more, wireless connectivity is offered for video and image transfer, pleasing the most technology-driven users.

Boasting the same AF system as Nikon's D4S, the D810 delivers the ultimate in high-resolution precision. Its resolution was certainly a game changer at the time of its release, and raised the bar for image quality and dynamic range. For professionals seeking the ultimate in DSLR image quality, the D810 delivers.



As the replacement for the D800 and D800E, the D810 promises to deliver even more detail with its large 36 million pixel count

Summary

When you pick up a D810 and spend an afternoon with it, you'll quickly understand that this isn't like other cameras. It's a model that should give you almost unlimited growing room as a photographer.

Nikon D810A

SRP: £2,000/\$3,575 (body only)

A high-resolution marvel designed exclusively for star-struck photographers

Technical data

Model	D810A
Price	£2,000/\$3,575 (body)
Web	www.nikon.com
Megapixels (effective)	36.3
Max resolution (pixels)	7,360 x 4,912
Sensor information	35.9 x 24.0mm CMOS FX-format
Lens data	Nikon F mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/8000sec.
ISO sensitivity	A, 200-12,800 (expandable to 51200 equivalent)
Exposure modes	P, A, S, M, M*
Metering options	Matrix, Center-weighted, Spot, Highlight-weighted
Flash modes	FCS, SS, RCS, RE, RE+SS, Slow RCS, Foff, Auto FP
Connectivity	USB 3.0, HDMI, 3.5mm Stereo mini-pin jack
Weight	880g (without battery)
Dimensions	146 x 123 x 81.5mm
Batteries	Rechargeable Li-ion
Storage	CF1, SD, SDXC, SDHC
LCD	3.2", 1229k-dot TFT, fixed
Viewfinder:	Eye-level pentaprism SLR

The Nikon D810A takes everything that's so great about the D810 and tailors it towards astrophotography, helping you to capture great shots of the cosmos easily. Featuring a redesigned infrared cut filter, the D810A is four times more sensitive to the deep red light from the H-alpha spectral line. This means that the true colours of nebula that emit a hydrogen-alpha wavelength can be recorded straight from the camera.

This isn't the only thing that helps out astrophotographers, as it also comes with a handy long-exposure manual mode too. Using this option you can set up to 900 second exposures to capture the night. You can also set a preview for shutter speeds over 30 seconds to help you focus and adjust the composition using live view. To help combat blur you can use the camera's electronic front-curtain shutter too.

With an ISO range of 200-12,800 (expandable to ISO 51,200 equivalent) you're able to shoot in dark conditions and the 36.3MP FX-format CMOS sensor (without an optical low pass filter) will capture high-resolution images to bring out all the detail in the night sky. There's also no limit on the amount of shots that can be fired continuously, helping you gather as many shots as possible for perfect star trails.



Capture high-resolution images of nebula, star trails, the Milky Way and more with this professional camera

Summary

This is a niche product, and at £2000/\$3575 (body only) you should be serious about astro before making the investment. With its IR cut filter and high-res sensor, it will deliver incredible results for that genre, however.



The D500 borrows elements from its bigger more powerful sibling, the D5

Nikon D500

SRP: £1,300/\$1,600 (body only)

Nikon introduced this incredible FX-format camera with an improved AF system offering the ultimate in photographic precision

Technical data

Model	Nikon D500
Price	£1,300/\$1,600 (body only)
Web	www.nikon.com
Megapixels (effective)	20.9
Max resolution (pixels)	5568 x 3712
Sensor information	CMOS, 23.5mm x 15.7mm FX-Format
Lens data	Nikon F mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/8000sec
ISO sensitivity	A, 100-51200
Exposure modes	Auto, P, A, S, M
Metering options	Matrix, Center-weighted, Spot, Highlight-weighted
Flash modes	FC, SS, RC, RE, off, Auto
Connectivity	Hi-speed USB, HDMI, 3.5mm jack, Wi-Fi
Weight	860g (without battery)
Dimensions	147 x 115 x 81mm
Batteries	Li-ion EN-EL15 battery
Storage	SD, SDHC, SDXC
LCD	3.2", 2359k-dot, tilting TFT
Viewfinder:	Eye level pentaprism SLR

Nikon's flagship FX-format offering provides DX agility and outstanding power. The D500 is the D5's more petite sibling, built to perform in even the most high-octane photography pursuits. From adventure to travel, the D500 will be able to keep up.

Like the D5, the D500 houses Nikon's next-generation 153-point AF system that will allow precision focusing even in extremely low light. The AF points cover almost the entire viewfinder frame, meaning the user has the widest possible coverage. The improved AF tracking and viewfinder visibility make it perfect for shooting motorsport and fashion shows where the subject is always moving.

You'll never miss a moment with the D500's 10fps shooting ability. Its high-performance buffer enables up to 200 NEF RAW images to be captured during one high-speed blast, which means you can shoot at maximum quality for an amazing 20 seconds. It makes the D500 the perfect choice for capturing wildlife and other high-speed and unpredictable subjects.

The 20.9 megapixel DX-format CMOS sensor and 180k-pixel RGB metering sensor combine to aid accurate subject recognition and high image detail. The D500 has excellent low-light abilities thanks to its impressive ISO range. The new

EXPEED 5 processing engine ensures high image quality across the standard ISO range from 100 to 51200.

The mighty Nikon D500 has a highly responsive 3.2 inch, 2359k dot, tilting touchscreen, which enables shooting from awkward angles, increasing creative capture possibilities. The touchscreen also allows users to easily scroll through the images and even enter essential IPTC metadata like copyright details in camera. When shooting in Live View you can even select the AF points, release the shutter and select preset white balance data,

With the inclusion of Picture control 2.0 it's extremely easy to define parameters, whether you are shooting stills or video. And D-Movie enables high-definition 4K/UHD movies of up to 29 minutes and 59 seconds long to be recorded in-camera. Other features include a 4K/UHD quality time-lapse function.

Summary

This is a truly versatile camera that will be able to cope with almost every photography situation imaginable. With amazing low-light performance, super speed and 4K abilities, this DX-format DSLR is truly incredible.

Nikon D750

SRP: £1,200/\$1,480
(body only)

Designed with the contemporary image-maker in mind

Technical data

Model	Nikon D750
Price	£1,200/\$1,480 (body only)
Web	www.nikon.com
Megapixels (effective)	24.3
Max resolution (pixels)	6016 x 4016
Sensor information	35.9 x 24 mm CMOS FX-Format
Lens data	Nikon F mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/4000sec
ISO sensitivity	A, 100-12,800 (expandable to 50-51,200 equivalent)
Exposure modes	Auto, P, A, S, M
Metering options	Matrix, Center-weighted, Spot, Highlight-weighted
Flash modes	A, A+RE, AutoSS, AutoSS+RE, Fon, RE, SS, SS+RE, RC+SS, RCS, FOff, Auto FP
Connectivity	Hi-speed USB, HDMI, 3.5mm jack, Wi-Fi
Weight	750g (without battery)
Dimensions	140.5 x 113 x 78mm
Batteries	Rechargeable Li-ion
Storage	SD, SDHC, SDXC
LCD	3.2", 1229k-dot TFT, tilting
Viewfinder	Eye level pentaprism SLR

The D750 brings dazzling image quality, cinematic video capabilities and pro-inspired handling with a tilting LCD and built-in Wi-Fi. Enthusiasts who are upgrading from a DX-format DSLR will marvel at the D750's excellent full-frame performance. Likewise, pros seeking a secondary camera for fast-paced shoots will appreciate the D750's familiar handling and speed, yet it comes at a lower price point to the D810. Other elements such as its small and lightweight design make this a versatile second camera, or a model really suitable for travel photographers.

Nikon's D750 provides prosumers with a magnificent level of image detail and the effect of removing the anti-aliasing filter is noticeable in the step up in sharpness. The D750's FX-format 24.3MP sensor sits alongside an EXPEED 4 processor to produce high-resolution imagery with smooth colour gradations, and is said to offer fantastic high-ISO performance superior even to the D810. The ISO ranges from 100-12,800 and is expandable ISO 50-51,200 equivalent and the camera doesn't disappoint, with images only beginning to show signs of damage at ISO 6400. To help in low light, there's a 51-point autofocus system that has a newly developed AF sensor module for smooth focusing in poor light.



The D750 borrows elements from both the more affordable D610 and the pro-grade, high-resolution D810

Summary

With built-in Wi-Fi connectivity, the D750 is designed for the contemporary image-maker, poised to benefit still photographers and videographers alike with the versatility and performance to match any working situation.

Nikon D610

SRP: £875/\$1,080
(body only)

High-quality images in a body that's value for money

Technical data

Model	Nikon D610
Price	£875/\$1,080 (body only)
Web	www.nikon.com
Megapixels (effective)	24.3
Max resolution (pixels)	6,016 x 4,016
Sensor information	35.9 x 24.0mm CMOS FX- Format
Lens data	Nikon F mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/4000sec, bulb
ISO sensitivity	A, 100-6,400 (extended 50-25,600)
Exposure modes	Auto, P, A, S, M, 19 scene modes
Metering options	Matrix, Center-weighted, Spot
Flash modes	A, RE, FF, SS, Fon, Foff
Connectivity	Hi-speed USB, HDMI, 3.5mm Stereo mini-pin jack
Weight	760g (without battery)
Dimensions	141 x 113 x 82mm
Batteries	Rechargeable Li-ion
Storage	SD, SDHC, SDXC
LCD	3.2", 921k-dot TFT, fixed
Viewfinder	Eye-level pentaprism SLR



The D610 is a light, full-frame DSLR made of magnesium-alloy and poly-carbonate. The camera is also weather-proof and durable

Within a few months of the D600's launch, a number of users began reporting that marks appeared at the edges of their images. After investigation it became apparent that the D600's shutter mechanism was faulty. As a result, the early D610 upgrade was announced.

On the surface, it's hard to distinguish the D610 from its predecessor and few changes were made.

The D610's new shutter does offer 6fps high-speed shooting, as opposed to 5.5fps, and there's an all-new Quiet Continuous mode, capable of capturing up to 3fps. Nikon also made improvements to the Auto White Balance in the upgraded model, which means the D610 is more accurate when shooting under a range of lighting conditions. Some may be sad to see no Wi-Fi has been added, though.

Image quality itself is impressive, thanks to the same 24.3-megapixel full-frame CMOS sensor that was also inside the D600 and Nikon has opted to retain the anti-aliasing filter. The D610 is also adept at capturing good-quality stills in low light. With a solid ISO range between 100-6400 (extendable to 50-25,600), results are impressive with little apparent noise. In fact, noise only really starts to set in when you're working in ISO settings above ISO 1600 and only becomes destructive past the ISO 3200 point.

Summary

The Nikon D610 offers photographers the opportunity to explore this 35mm-equivalent format without the heavy price tag, giving you professional-quality shots and good results even in low light.



The Nikon D7200 is made of magnesium alloy and is weather resistant. It's a camera that's built to last

Nikon D7200

SRP: £650/\$800
(body only)

The top-of-the-range DX camera delivers on both performance and features

Technical data

Model	Nikon D7200
Price	£650/\$800 (body only)
Web	www.nikon.com
Megapixels (effective)	24.2
Max resolution (pixels)	6,000 x 4,000
Sensor information	23.5 x 15.6mm CMOS DX-format
Lens data	Nikon F mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30 – 1/8000 sec, bulb
ISO sensitivity	A, 100 to 25600
Exposure modes	Auto, 16 scene modes, 7 special effect modes, P, A, S, M
Metering options	Matrix, Center-weighted, Spot
Flash modes	A, A+RE, AutoSS, AutoSS+RE, FF, RE, SS, SS+RE, RCSS, RCS, FOff
Connectivity	Hi-speed USB, HDMI, 3.5mm jack, Wi-Fi, NFC
Weight	675g (without battery)
Dimensions	135.5 x 106.5 x 76mm
Batteries	Rechargeable Li-ion
Storage	SD/SDHC/SDXC
LCD	3.2", 1,229k-dot TFT, fixed
Viewfinder:	Eye level pentaprism SLR

Sitting at the top of the DX range, you'll find the Nikon D7200. This came as an upgrade to the D7100, sharing many of the same features. Its sensor stepped up marginally from 24.1MP to a 24.2MP and still comes without an anti-aliasing filter for improved sharpness and finer details. Its body design remained the same too, but it's a design that works well, with a lock button on the mode dial to stop settings being shifted and a useful separate dial for drive modes. The top and rear covers are made from tough magnesium alloy and its textured body is easy to grip, as well as being dust, weather and drop resistant. This tough body comes with a 3.2-inch, 1,229k-dot LCD screen, which is fixed and not touch-sensitive, so it can't help you out at awkward angles. The eye-level pentaprism optical viewfinder offers 100 per cent coverage, though.

The processor has been updated from EXPEED 3 to EXPEED 4. The frame rate it's capable of producing remains at 6fps at full resolution or 7fps in 1.3x crop mode, however its buffer capacity has improved, meaning you can keep shooting for longer. Nikon states it's capable of capturing up to 100 JPEGs or 27 RAW files in one burst. As well as being able to get faster frame rates using the crop mode, it will also help you to get closer to your subject, almost doubling the telephoto effect, and it allows the focus points to cover the whole of the frame.

The Nikon D7200 has now inherited the Multi-CAM 3500 II 51-point AF system that focuses down to -3EV for lower light shooting, with 15 cross-type sensors in the centre. It now also has a native ISO range of 100-25600, up from the D7100's top end of ISO 6400, helping you to shoot even in extremely dark environments.

Movie enthusiasts can really get stuck into 1080p footage at 30/25p, and you can also shoot at 60p/50p when using the 1.3x crop mode. There's a dedicated menu just for movie options, making selecting settings a breeze and there's also a useful Zebra mode that allows you to see whether any highlight areas are blown out.

More and more cameras are coming with built-in Wi-Fi now for easy image sharing, and the D7200 is no different. However, it was also the first of Nikon's DSLRs to benefit from NFC. This lets you pair your camera with an NFC compatible device so you can simply touch them together to transfer images.

Summary

A high-end DX camera capable of professional imaging results, the Nikon D7200 is an all-rounder, packed full of useful features. If you're after a relatively affordable option that will still deliver, this is an essential buy.

Nikon D5600

SRP: £800 with 18-55mm lens (UK only)

An entry-level camera that packs in some very handy extra features

Technical data

Model	Nikon D5600
Price	£800 UK only
Web	www.nikon.com
Megapixels (effective)	24.2
Max resolution (pixels)	6,000 x 4,000
Sensor information	23.5 x 15.6mm CMOS DX-format
Lens data	Nikon F mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/4000sec, bulb
ISO sensitivity	A, 100-25600
Exposure modes	Auto, 16 scene modes, 10 special effects, P, A, S, M
Metering options	Matrix, Centre-weight, Spot
Flash modes	Auto, auto+RE, AutoSS, AutoSS+RE, FOn, RE, SS, SS+RE, RC+SS, RCS, FOff
Connectivity	Hi-Speed USB, HDMI, 3.5mm jack, Wi-Fi
Weight	415g (without battery)
Dimensions	124 x 97 x 70 mm
Batteries	Rechargeable Li-ion
Storage	SD, SDXC, SDHC
LCD	3.2", 1037k-dot TFT
Viewfinder:	Eye-level pentamirror SLR

The Nikon D5600 is the company's higher entry-level camera, sitting above the D3400. A modest upgrade of the D5500, it shares many of the same features as its beginner brethren, but offers users the opportunity to add on extras for its slightly higher cost. To start with it comes with a 1037k-dot touch screen that's vari-angle, helping you shoot from unusual perspectives. As well as using touch controls to operate the camera, traditional buttons are still there; it is, however, a streamlined camera aimed at beginners, so the back isn't too cluttered up by physical dials - most of the controls can be accessed by tapping the *i* button. It's a small camera, so perfect for those not looking for anything too bulky; it weighs just 415g (body only), yet Nikon has still managed to include a pronounced grip.

A 24.2MP DX sensor without a low pass filter delivers plenty of detail, and an EXPEED 4 processing engine that helps the camera shoot at 5fps. A big advantage over the D3400 is its built-in Wi-Fi, allowing you to easily share your shots as well as shoot remotely. The maximum ISO setting of 25,600 enables you to shoot in really dark environments and the 39 AF points with nine cross types gives more focus accuracy than can be attained using the Nikon D3400. The D5600 also boasts the SnapBridge connectivity, just like the D3400.



The D5600 is more compact than Nikon's premium DSLRs but it has a slightly more pro feel than the D3400

Summary

A great starter camera that keeps things simple while adding on useful features such as a vari-angle touch screen and Wi-Fi. It's certainly worth the extra money if those options would come in handy for you.

Nikon D3400

SRP: £490/\$650 (with 18-55mm lens)

With a guide mode to help you move up from compacts, this is one helpful camera

Technical data

Model	Nikon D3400
Price	£490/\$650 (with 18-55mm lens)
Web	www.nikon.com
Megapixels (effective)	24.2
Max resolution (pixels)	6,000 x 4,000
Sensor information	23.5 x 15.6mm CMOS DX-format
Lens data	Nikon F mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/4000sec, bulb
ISO sensitivity	A, 100-12800
Exposure modes	Auto, P, A, S, M
Metering options	Matrix, Center-weighted, Spot
Flash modes	A, RE, SS, SS+RE, FF, RCSS, RCS
Connectivity	Hi-speed USB, HDMI, 3.5mm Stereo mini-pin jack
Weight	395g (body only)
Dimensions	124 x 98 x 75.5 mm
Batteries	Rechargeable Li-ion
Storage	SD, SDHC, SDXC
LCD	3", 921k-dot TFT, fixed
Viewfinder:	Eye level pentamirror SLR



The D3400 is perfect for those looking for a compact body that doesn't take up too much space

The first thing that strikes you about the D3400 is how compact it is - it isn't far off the size of some Micro Four Thirds cameras. Inside, however, it packs a 24.2MP DX sensor and EXPEED 4 processing engine, which delivers impressive image quality in addition to Full HD movie footage at up to 60fps. One of the biggest changes from the D3300, however, is the presence of the ability to

share images via the SnapBridge connectivity feature that enables you to sync your photos as you capture them from a smartphone via Bluetooth. The 11-point Multi-CAM 1000 autofocus sensor module does a good job of picking fast and accurate focus in most lighting, only hunting slightly in much lower light situations. It comes with 11 AF points (one cross type) and focusing modes are selected according to the shooting mode selected: spot focus for macro, area focus for landscape and so on.

The controls of the D3400 have been kept simple, as the three-inch rear LCD offers easy access to all the information required. The LCD also gives access to the various filter options and a guide mode, but is fixed and not touchscreen. The biggest thing missing is Wi-Fi, however, which means that some of the potential controls that SnapBridge offers on the D5600 are not available here.

Summary

Beginners will fall for this affordable, lightweight option that walks you through advanced-level shots with its super-helpful Guide Mode. It will appeal to those undecided between a full-on DSLR and a smaller, more compact option.



The Nikon 1 J5 is a small but feature-packed choice, and you can even use F mount lenses via an adapter

Nikon 1 J5

£270/\$330 (with 10-30mm lens)

A compact camera that let you take more control of your shots without the need for a bigger model

Technical data

Model	Nikon 1 J5
Price	£270/\$330 (with 10-30mm lens)
Web	www.nikon.com
Megapixels (effective)	20.8
Max resolution (pixels)	5568 x 3712
Sensor information	13.2 x 8.8mm CMOS CX-format
Lens data	Nikon 1 mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/16,000sec, bulb
ISO sensitivity	A, 16-12,800
Exposure modes	Scene auto selector, P, A, S, M
Metering options	Matrix, Center-weighted, Spot
Flash modes	A, A+RE, FOn, FOn+SS, RE, RE+SS, RCS, RC+SS, FOff
Connectivity	Hi-Speed USB, HDMI, Wi-Fi, NFC
Weight	231g (body only)
Dimensions	98.3 x 59.7 x 31.5mm
Batteries	Rechargeable Li-ion
Storage	MicroSD, microSDHX, microSDXC
LCD	3", 1037k-dot TFT, tilting
Viewfinder	None

If you're after a good level of control in a truly portable body, the Nikon 1 J5 could well be for you. At just 231g (body only), this camera comes with many manual features to help photographers get the right result, while being small enough to fit into a handbag or large pocket.

Nikon has opted for a very in-fashion retro design for this version, with a plastic construction that still looks the business. To give you quick access to manual settings, the manufacturer has gone with a mode dial on the top plate and dual dials for easy settings changes, giving DSLR users familiar controls.

You can, of course, also control the camera through the three-inch touch-sensitive screen. This is a 1037K-dot LCD screen that can flip 180 degrees, during which Selfie mode and face detection automatically come on to help with self portraits. There's no viewfinder, however, so you'll have to rely on the LCD even in harsh sunlight. There's a built-in flash if you need to add in some light – especially useful for illuminating backlit subjects such as portraits. However, there's no hotshoe or accessory port for add-ons such as flash guns.

Inside the body you'll find a 20.8MP CX-format one-inch sensor, which is smaller than the APS-C sensors you'll find in some competitor CSCs. However, image quality is still decent, with good colour saturation and dynamic range. There's no

optical low pass filter present either, which ensures images stay sharp and finer details are well resolved. The top ISO has also been improved from the J4's 6400, with a new range of ISO 160-12,800, meaning it's much more capable in low light.

A big thing that is quite impressive about this model is that the EXPPEED 5A processing engine allows a continuous shooting rate of 60fps using a fixed focus, or 20fps using continuous autofocus. This is an impressive speed that will help you to capture even the fastest action. Its electronic shutter lets you shoot as fast as 1/16,000sec and it's near silent for discreet shooting for things like wildlife or street photography. Another tool for capturing action is the Hybrid AF system with 171 AF points, 105 of which are phase detection points, to help with more accurate focusing. Video enthusiasts will also benefit from options of 1080p at 60fps or 4K recording at 15fps, and you can share your shots quickly and easily using built-in Wi-Fi and NFC.

Summary

A great option for those upgrading from a compact and wanting more control, as well as interchangeable lenses, the Nikon 1 J5 is apt at shooting action, perfect for shots of the kids, wildlife, sports and more.

Nikon 1 V3

£800/\$990 (with 10-30mm lens, viewfinder and grip)

Get creative with photography in this small but versatile system

Technical data

Model	Nikon 1 V3
Price	£800/\$990 (10-30mm lens, viewfinder, grip)
Megapixels (effective)	18.4
Max resolution (pixels)	5,232 x 3,488
Sensor information	13.2 x 8.8mm CMOS CX
Lens data	Nikon 1 mount
Shutter speed	30-1/4000sec, bulb (mechanical)/30-1/16,000sec, bulb (electronic)
ISO sensitivity	A, 160-12800
Exposure modes	Scene Auto Select, P, A, S, M
Metering options	Matrix, Centre-weighted, spot
Flash modes	FO, FOn+SS, RE, RE+SS, RCS, RC+SS
Connectivity	Hi-Speed USB, HDMI, 3.5mm jack, Wi-Fi
Weight	282g (body only)
Dimensions	110.9 x 65.0 x 33.2mm
Batteries	Rechargeable Li-ion
Storage	MicroSD, microSDHC, microSDXC
LCD	3-inch, 1037k-dot TFT
Viewfinder:	Optional 2359k-dot DF-N1000 electronic

The Nikon 1 V3 is another CSC in the line-up that features high-end functions in a small body. It's slightly bigger than the J5 but shares the same sized one-inch sensor, but at a slightly reduced 18.4MP. As with the J5, there's no optical low pass filter to get sharper results and it uses an Advanced Hybrid AF which has 171 AF points with 105 phase detection AF points for quick focusing.

Unlike the J5, however, it comes with a hotshoe so you can add on purchasable accessories such as an external flash or viewfinder. Of course there's still a built-in flash and you can opt to use the LCD display for framing, but it's nice to have the option. The screen can be tilted up or down and can be used to focus and take shots using its touch screen functionality.

Other highlights include an external mic jack, useful for getting a much clearer sound when shooting video, EXPEED 4A processing engine that has the ability to shoot full-res at 20fps using continuous autofocus, 160-12,800 ISO range and Wi-Fi. Also, videographers will love the ability to shoot full HD videos at 60fps. There are many creative modes that are also offered on other Nikon 1 models too, such as Fast Motion to add extra energy to your scenes, Jump Cut to create a fun stop motion look, or four second movie clips that you can even stitch together.



The Nikon 1 V3 pictured above is a high-quality option for enthusiastic photographers, that packs a lot of creative features into its compact frame

Summary

A solid option in a small camera that offers the ability to add on extras such as a viewfinder, the Nikon 1 V3 is a fast and fiercely capable CSC model packed with plenty of really useful and creative options.

Nikon 1 J4

£300/\$400 (with 11-27.5mm lens)

An entry-level CSC that still boasts some stellar features

Technical data

Model	Nikon 1 J4
Price	£340/\$450 (with 11-27.5mm lens)
Web	www.nikon.com
Megapixels (effective)	18.4
Max resolution (pixels)	5232 x 3488
Sensor information	CMOS, 13.2 x 8.8mm CX-format
Lens data	Nikon 1 mount
Zoom	Lens dependent
Focus/macro	Lens dependent
Shutter speed	30-1/16,000sec, bulb
ISO sensitivity	A, 200-12800
Exposure modes	Scene Auto Select, P, A, S, M
Metering options	Matrix, Center-weighted, Spot
Flash modes	Auto, Auto+RE, FO, FOn+SS, RE, RE+SS, RCS, RC+SS, FOff
Connectivity	Hi-Speed, HDMI
Weight	232g (body only)
Dimensions	99.5x60x28.5mm
Batteries	Rechargeable Li-ion
Storage	MicroSD, microSDHC, microSDXC
LCD	3" 1037k-dot TFT
Viewfinder:	None



A sleek and simple body available in white, black silver and red houses incredible power, made easy with an intuitive touchscreen and responsive AF

Fast, light and solid – this portable compact camera delivers quality performance and utterly effortless handling. It's perfect if you want to make the jump from a basic compact camera and would like a little more flexibility in your shooting.

Housing an 18.4MP CMOS sensor and rapid autofocus this little camera will enable you to capture even the most fleeting moment. ISO

capabilities ranging from ISO 160-12800 mean that you can still get beautiful photos and movies, even when you shoot in low light. The 105 phase detection points lock onto moving subjects with remarkable speed and precision, and the J4 will enable you to capture sharp, fast-action photos up to an incredible 20fps, with continuous AF meaning that you will never miss a moment.

The extremely responsive touchscreen lets you do everything with a simple tap or graceful swipe – focus and shoot simply by tapping the screen, tap to select the autofocus area, release the shutter, or access key camera settings. Add a creative twist to your shots with the intuitive Creative Palette function. Simply slide your finger around the ring on the touchscreen, or rotate the multi-selector, to apply artistic, studio-quality filters to your photos.

Summary

A budget-friendly, yet still good-quality CSC option for those who are looking to experiment with the control that interchangeable lenses gives you. The built-in Wi-Fi makes sharing your shots a doddle.

The Coolpix A900 is very user-friendly and offers plenty of features, but its lack of RAW mode might put some off



Nikon Coolpix A900

Promising exceptional images in a really portable body, the Coolpix A900 is a high-quality compact

SRP: £370/\$400

Technical data

Model	Nikon Coolpix A900
Price	£370/\$400
Web	www.nikon.com
Megapixels (effective)	20.3-megapixel
Max resolution (pixels)	5184 x 3888
Sensor information	1/2.3" (6.17 x 4.55 mm)
Lens data	35x optical zoom
Zoom	Zoom lens
Focus/macro	1cm macro
Shutter speed	8sec-1/2000sec (1/4000sec available in certain modes)
ISO sensitivity	80-1600 (ISO 3200 available when using P, S, A or M mode)
Exposure modes	Auto, 17 Scene modes, P, A, S, M
Metering options	Matrix, Center-weighted, Spot
Flash modes	A, A+SS, FOn, SS, RC+SS, FOff, RE, Manual
Connectivity	USB 2.0 High Speed data and Type-D Micro HDMI
Weight	298 g with battery
Dimensions	113.0 x 66.5 x 39.9 mm
Batteries	Li-ion EN-EL12
Storage	SD/SDHC/SDXC
LCD	3" 921k-dot TFT tilting
Viewfinder:	None

The Nikon Coolpix A900 sits among the manufacturer's top-of-the-range compacts, and it's perfect for those wanting plenty of compositional scope without carrying a bulky kit bag.

It's ultra-portable at just 298g but its sleek exterior still manages to incorporate a grip to make handling convenient. The 35x optical zoom lens is designed to enable you to capture pretty much any subject that might present itself without the need to worry about changing lenses, so it's pretty much ideal for anyone travelling. What's more, this can be extended up to 70x via the Dynamic Fine Zoom function. In 35mm terms, the camera can shoot 24mm wide shots right up to an astonishing 840mm for distant subjects, with 1cm close focusing for macro, too.

This breadth of capability is supported by a high-speed AF system that is designed to ensure that you don't miss anything, even if it's only fleeting. The AF modes include a face priority option for portrait photography. There's also a built-in 5-Axis hybrid VR system, enabling you to capture sharp images at slower shutter speeds than would otherwise be possible. The 20.3MP, sensor is back-illuminated to deliver high-quality results even in low light. There's a 3-inch tilting 921k-dot LCD screen included, but no separate viewfinder for composition. However, this is somewhat inevitable when designing a body as sleek and compact as this.

You can also shoot in 14-bit compressed RAW files, which capture more information than JPEGs and gives you more control at the editing stage. Furthermore, you can take control using the manual focusing ring for fine tuning image sharpness, and the ISO range of ISO 80 to 1600 (3200 in certain shooting modes) lets you shoot in lower light while keeping your shutter speed high. You can also capture action using the 7fps continuous shooting mode and 1/4000s top shutter speed. All of this is great, but the main disappointment that stands out here is the absence of RAW mode. Being restricted to JPEG is frustrating, even if this is a camera designed for those who may not need or wish to edit their images to a high degree.

Wi-Fi is built in to the camera and there's also SnapBridge technology included for extra connectivity and easy sharing. Video enthusiasts will appreciate the fact that the camera can shoot 4K movies, with a maximum resolution of 3840 x 2160.

Summary

This is a camera that ticks an awful lot of boxes if you are looking for a highly portable compact. The downside that is difficult to overlook is the lack of RAW mode, which means that you are restricted to shooting in JPEG mode.

Nikon Coolpix P900

SRP: £500/\$600

This bridge camera with a massive 83x optical zoom range is a flexible option

Technical data

Model	Nikon Coolpix P900
Price	£500/\$600
Megapixels (effective)	16MP
Max resolution (pixels)	4608 x 3456
Sensor information	1/2.3-in CMOS
Lens data	4.3-357mm, f/2.8-6.5
Zoom	83x optical, 166x digital
Focus/macro	50cm-infinity
Shutter speed	1-1/4000sec (15-1/4000sec when ISO is 100 in M mode)
ISO sensitivity	100-1600
Exposure modes	Auto, Scene Auto Selector, Scene Modes, P, S, A, M
Metering options	Matrix, Center-weighted, Spot
Flash modes	A, A+RE, FOn, Manual, SS, RCS, FOff
Connectivity	Hi-speed USB, HDMI micro, Wi-Fi, NFC
Weight	899g (with battery)
Dimensions	139.5 x 103.2 x 137.4mm
Batteries	Rechargeable Li-ion
Storage	SD, SDHC, SDXC
LCD	3", 921K-dot TFT LCD
Viewfinder:	921K-dot electronic



This camera is only classed as a 'compact' due to its fixed lens, but it's still a reasonable size

The Nikon Coolpix P900 has a huge 83x optical zoom, which at the time of its release was a world first. That's a whopping 24-2000mm reach in 35mm terms, meaning that you can shoot sweeping wide landscapes or zoom in on intricate details. This can be digitally expanded to 166x using the Dynamic Fine Zoom, giving you a 4000mm reach in 35mm terms.

When using the longer focal lengths, naturally camera shake is going to be an issue. Nikon has tried

to combat this by featuring vibration reduction to help you when you're shooting handheld, which is said to give you a five-stop shutter speed advantage.

As well as a huge zoom, this camera offers a back-illuminated 16MP 1/2.3-inch CMOS sensor and manual controls. Weirdly for a camera of this price point you can't shoot in Raw, though. It does have built-in Wi-Fi and NFC, however, and a fully articulating LCD screen for shooting from unusual angles. It's not a touch screen so you can't use it to change focus point quickly. There is, however, a 921k-dot electronic viewfinder that comes with an eye sensor so it activates automatically.

The Full HD movie function (1080p/60p) comes with a dedicated movie record mode and shooting time lag is said to have been reduced to 0.12sec at a wide angle setting.

Summary

At 899g it's around the same weight as a DSLR, and it's not a small camera, so it's not one you'd buy for its portability. It's a versatile option though if you don't want the added bulk of multiple lenses.

Nikon Coolpix B700

SRP: £359/\$500

An exceptional camera that provides the power to be creative

Technical data

Model	Nikon Coolpix B700
Price	£359/\$500
Megapixels (effective)	20.3
Max resolution (pixels)	4608 x 3456
Sensor information	1/2.3-in type CMOS
Lens data	4.3 to 258mm f3.3 to 6.5
Zoom	60x optical zoom,
Shutter speed	1-1/1500sec
ISO sensitivity	125-1600
Exposure modes	Auto, Scene Auto Selector, 18 Scene modes, Short Movie Show, Smart Portrait, Special Effects
Metering options	Matrix, Centre-weighted (digital zoom <2x), Spot (digital zoom 2x+)
Flash modes	A, A+RE, FOff, FOn, SS
Connectivity	USB, HDMI micro, Wi-Fi
Weight	221g with battery
Dimensions	110.4 x 66.0 x 26.8mm
Batteries	Rechargeable Li-ion
Storage	SD, SDHC, SDXC
LCD	3" 921K-dot OLED fixed
Viewfinder:	Electronic viewfinder



The COOLPIX B700 comes with a 3-inch vari-angle LCD touchscreen that makes images look fantastic

Built with a DSLR-like design, the Coolpix B700 puts the essential controls at your fingertips with the inclusion of a PASM mode dial. The comfortable-to-hold camera houses a powerful 20.2MP backside-illuminated CMOS sensor that will capture every detail, even in low light.

You'll be able to get truly up close and personal with your captures with the Super ED glass lens. The 60x optical zoom gives you awesome telephoto power, then Dynamic Fine Zoom, an enhanced digital zoom, effectively doubles that reach for a staggering 120x

zoom. The Dual Detect Vibration Reduction (VR) counteracts camera shake to keep your shots steady. Not only will the zoom reach mean that you'll never miss a moment, but the 5fps will enable you to freeze action in its tracks.

For photographers who want to preserve maximum image quality and have greater flexibility for editing images post capture, the B700 handily supports RAW files. Capturing in RAW format preserves all of the data captured by the image sensor, making it easier to adjust exposure settings, white balance, colours and other settings using photo editing software later. It is far more flexible than just shooting in JPEG.

The large LCD display makes it easy to compose your shots or monitor your video recording. Reviewing and sharing your creations is a pleasure, too – every shot looks fantastic on the display, plus the built-in Wi-Fi, NFC and Bluetooth mean you can share with ease.

Summary

A powerful, far-reaching camera with the feel of a DSLR, the B700 puts the controls at your fingertips. The incredible zoom will allow you to shoot up close and personal, and the built-in connectivity means sharing is simple too.

Ultimate Guide to... Nikon Lenses

Let us help you capture the full picture with our guide to lenses for your Nikon

Selecting the right lens for the correct subject matter is crucial. Your lens is the eye of your camera and records or captures what it sees. In terms of cost and performance, it usually comes down to the more you spend, the better your results; however, if you're just starting out there is no point in splashing out on lots of expensive equipment straight away as you first need to learn the basics of photography and find which genre you wish to pursue.

A good lens is pricey; there's no getting around that fact. The cheaper kit lenses will produce good enough results for beginners, but when you need to take your photography to the next step you will have to invest in a couple of decent lenses.

A lens's angle of view is measured in millimetres. An ultra-wide-angle lens will have a measurement

that is less than 24mm, a wide-angle lens ranges from 25-35mm, and a normal or standard lens is 36mm-60mm. Past this number the lens becomes a long focus lens or telephoto. Another thing to consider when looking for the right lens is the construction. There are prime lenses, which have fixed focal lengths (ie the lens does not zoom in or out), and there are zoom lenses, where the focal point can be adjusted.

The type of camera you have will also affect what lens you should shoot with. If you have a full-frame sensor then the angle of view is the equivalent to how it reads on the lens (a 35mm will be 35mm, for example). However, if you have a camera with a crop factor then the focal length will be different. If the camera has a crop factor of 1.6x then a 35mm will be equivalent to a 56mm angle.

“When you're ready to take your photography to the next level, you will have to invest in lenses”





Lenses for landscapes

Most photographers will opt for a wide-angle lens when capturing a landscape image, as they want to include as much of the vista as possible.

For most, a wide-angle lens is anything that is lower than 35mm. But remember that if your Nikon camera has a crop factor of 1.6x then you need a lens measuring 22mm to have a 35mm equivalent.

When shooting a landscape scene there are some technical aspects to be aware of. If you want fine detail from the front to the back of the image then you will need to set a narrow aperture, ie anything higher than f16. This is when the lens is letting in the least amount of light, so to balance the exposure with the shutter speed you will most likely need to support the camera on a tripod to keep it steady. You should also compose your shot in thirds and look for leading lines in the landscape to pull the viewer's eye through the image.

On a landscape shoot it is best practice to use the focus on manual mode, as your eyesight is far more accurate than the camera lens and you should be aware of where you want the focal point. With landscape photography you have time to consider and control all these aspects, so you should use the camera and lens manually.

Some lenses are so wide that they take on a fisheye effect and the image becomes distorted in a spherical manner. For the 35mm format, a typical focal length of a fisheye lens is between 8-10mm for cameras with a crop factor, and 15-16mm for a full-frame sensor. Whether or not you should use a fisheye lens in your landscapes is down to individual taste – some embrace this effect whereas others aren't too keen on it. Experiment to see whether this creative effect is something that you wish to use more.



WIDE ANGLE
The wide angle helps accentuate the sweeping view of the landscape image

RULE OF THIRDS
In landscape photography the rule of thirds is generally a good one to follow as the image rests easier on the eye

Take a look

They may not be the cheapest out there, but these are the best lenses for landscape photography on your Nikon

Nikon AF-S 14-24mm f2.8



Though quite expensive, but Nikon users won't be disappointed with the results of this 14-

24mm lens. The zoom range is highly adaptable to any landscape scene, and the wide-angle 14mm will pack plenty of scenery into the frame. The fact that it's teamed with a wide f2.8 aperture makes this lens perfect in low light.

Price: £700

Contact: 01707 329999

Web: europe-nikon.com

16-35MM F4G AF-S ED VR NIKKOR



If you want a wide-angle zoom for landscape photography, you could do much worse than this

16-35mm zoom. It encompasses all the focal lengths you are likely to want when capturing wide scenic shots, with a constant f4 max aperture. The focal lengths between 24mm and 35mm are useful to have, too.

Price: £1030

Contact: 01707 329999

Web: europe-nikon.com

10-24MM F3.5-4.5G AF-S DX NIKKOR



This lens option is aimed at users of Nikon's line of sensor cameras, known as DX models. It offers the equivalent of 15-36mm in full-frame terms, so it covers an ideal range of focal lengths for landscape photography enthusiasts. Users of FX, full-frame cameras, however, will need to look elsewhere for a lens solution.

Price: £834

Contact: 01707 329999

Web: europe-nikon.com

FOCAL POINT

A manual focus is always best when it comes to landscape photography as your eye is more reliable and there are many elements in a composition to consider as the main focal point

LEAD-IN LINES

Look for lead-in lines in the composition to produce superior results. Make sure you have a point of interest

“Some lenses are so wide that they take on a fisheye effect and the image becomes distorted”

“Zoom lenses aren’t as fast as primes, so you may need to up the ISO”

CHARACTER

Try to photograph people with lots of character. Old people and babies work particularly well for this type of photography

DEPTH OF FIELD

If you’re using a shallow depth of field, make sure you keep focus on one part of the image. In portraiture photography the eyes are a key part



POSITION

Come in close to your subject and stand slightly above to produce more flattering results. If you position yourself underneath the subject the chin will look bigger

MONOCHROME

Black and white is much more flattering and portraits generally look superior in this medium

Lenses for portraits

For portrait photography you want to shoot the head and the shoulders. Prime lenses will produce perfect results, but some find these hard to use as they’re fixed in their focal range. However, the unique style this type of lens produces is highly popular with industry professionals and so is worth trying.

Many prime lenses are able to open to a wide aperture and this can create a dreamy effect where the subject is sharp and the background is blurred. On some lenses the aperture will go as wide as f1.4, meaning it’s effective to use in low light and for street/documentary photography. It’s also available at an extremely reasonable price from Nikon, but if you have a bigger budget to spend, then there are many beautiful prime lenses on offer such as the 60mm f2.8. Prime lenses are also generally a lot lighter than most zoom lenses, so if you’re out

and about they can make a considerable difference to your overall comfort.

Again, your camera’s sensor will make a difference to which lens you should go for, and some people may prefer shooting portraits with a zoom lens. Something like a 15-85mm can be most useful, as the versatile focal range is perfect for close-up portraits or if you want to get a wider angle. But remember that zoom lenses are not as fast as prime lenses, so you may need to up the ISO to compensate for the lack of light. It’s best to set your camera to anything above 1/125sec if you want crisp results.

Zoom lenses will also struggle to create the unique effects that prime lenses are capable of; however, they make up for any shortcomings with their versatile focal lengths.

Take a look

These lenses will deliver great portraits every time

Nikon AF-S NIKKOR 50mm f1.8



The ultra-wide f1.8 aperture means this lens from Nikon will cope well in low light and with street photography. The 50mm angle will equate to something like an 80mm lens with a camera with a crop factor, which can be good if you want to get in close but need to keep some distance from your subject.

Price: £150

Contact: 01707 329999

Web: europe-nikon.com

AF-S 105mm f1.4E ED



The 105mm portrait lens is a recent addition to the Nikon F-mount range and offers those who specialise in portrait or wedding photography an extremely powerful, high-quality prime lens option. The ability to shoot at this wide an aperture is a major plus point, especially in low light.

Price: £2050

Contact: 01707 329999

Web: europe-nikon.com

AF-S NIKKOR 85mm f/1.4G



A professional medium telephoto lens with a speedy f/1.4 aperture, this lens works well with Nikon’s FX-format SLRs. A Nano Crystal coating on the lens itself reduces ghosting and flare, and the nine-blade rounded aperture gives you a soft and pleasing blur, great for a bokeh effect. This lens works well for both portrait and general studio use.

Price: £1300

Contact: 01707 329999

Web: europe-nikon.com

VERSATILITY

A versatile focal range is important for travel, as you'll want to shoot a variety of subjects

INSURANCE

Make sure you protect your equipment by taking out a separate insurance policy on it



GET CLOSE

Intimate portraits make for excellent images when travelling. Having a zoom lens allows you to get in close

BACK UP

Back up your images whenever possible. There are many storage devices designed specially for photographers on the go

Lenses for travel

If you're the adventurous type, then you may find yourself on many big trips to some remote places and you'll no doubt want to take your Nikon with you. If you're a travelling photographer then the biggest thing to consider in your kit bag is the weight of your photographic equipment. You may have to compromise on image quality due to practical reasons, as if you're travelling alone you will soon get annoyed with lugging around two or three heavy lenses. This weight issue will most likely affect photographers with heavy professional DSLR camera bodies such as the D4.

For travellers, having the lightest but most versatile lens possible is important, so a large focal range is essential. The best option to consider to take on a trip is just one zoom lens with a focal range from around 18-200mm – in 35mm terms this will equal 27-300mm. This means you have everything covered from landscapes to portraits. Nikon makes a range

of telephoto lenses, from the wide-reaching 80-400mm to the slightly more budget 70-300mm.

At the full zoom of a zoom lens you will need to consider technical issues such as lens shake; however, if you have a good camera model you can always up the ISO and shoot in RAW to try to correct as much as possible in the post-production process. This also means that you need to take plenty of memory cards and a portable external hard drive to back up your images whenever possible.

When you're travelling as a photographer you may find your expensive equipment could make you a key target for pickpockets, but don't let this put you off. Take out a fully comprehensive insurance policy and try not to show you have lots of flashy equipment. Some photographers deliberately make their gear look worn out by putting tape or plasters on their camera body and lenses.

“The biggest thing to consider is the weight of your photographic equipment”

Take a look

Travel light with these three lenses

Nikon AF-S DX NIKKOR 18-200mm f3.5-5.6G ED VR II



Made for the Nikon DX models, this lens is essentially a 27-300mm. In terms of value for

money, Nikon users will be hard stretched to find something better. This is the second generation of its kind and includes a 'zoom creep' feature to prevent the lens from sliding forward.

Price: £300

Contact: 01707 329999

Web: www.nikon.co.uk

AF-S DX NIKKOR 16-80mm f2.8-4E ED VR



This is a high-quality DX zoom lens with a versatile zoom range and fast aperture

offers up more shooting options, while the impressive VR keeps images sharp. It's compact and lightweight making it perfect for travel.

Price: £580

Contact: 01707 329999

Web: europe-nikon.com

AF-S NIKKOR 80-400mm f4.5-5.6 VR



This 5x high power zoom lens allows handheld super telephoto zoom shooting, even in

low-light scenarios that would normally call for a tripod. When luggage is an issue, this is a great solution for lightening the load. It does come at a price, however.

Price: £1,899

Contact: 01707 329999

Web: europe-nikon.com

Lenses for macro

In close-up photography, a macro lens produces consistently great results. There is of course a variety of matter that can be shot in macro form such as food, but macro lenses are most often used for product photography, while bright colours, flowers and insects generally make excellent subjects too.

A macro lens could measure any focal length, but a 30-60mm range is typically used for product photography and small objects. A 90-105mm range is the standard focal range used for flowers and small objects, and a 150-200mm range gives more working distance and is typically used for shooting insects and other small animals.

There are a few zoom lenses out there that provide a macro option, but they generally do not allow a one-to-one magnification.

In macro photography, if you want detailed results then it's best to use a narrow aperture, ie anything above f16. This ensures that the whole image remains sharp and in focus. But if you want to blur the background and have just one focal point in the image, then you'll need to use a shallow depth of field. Most macro lenses aren't as fast as primes, and usually only open as wide as f2.8, but this should be enough. If you want to use macro lenses with a shallow depth of field, it's unlikely you'll need anything much wider than f2.8.

For those who don't want to take the plunge on a macro lens just yet fear not, as extension tubes are available as a cheap and effective alternative to a new lens. Extension tubes are a fair bit cheaper than a macro lens and can be attached in between the camera and standard lens. Tubes vary in length and can be stacked, decreasing lens-to-subject distance and increasing magnification. Less light will reach the sensor with an extension tube attached, so a longer exposure time will be needed to compensate and a tripod will have to be used to reduce shake.

SUBJECTS

Flowers and insects make excellent subject matter. Set your camera up next to a pollinating flower to let the insects come to you

MANUAL

A manual focus is always more reliable, and in macro photography you have time to control this



1:1 RATIO

A macro lens is anything that produces an image at a ratio of 1:1 or larger

COLOURS

Bright colours are good for macro photography and subject matter becomes more abstract the closer you get

Take a look

Get up close and personal with some of our favourite moderately priced macro lenses

AF-S Micro NIKKOR 60mm f/2.8G ED



The 60mm lens comes with a fast f2.8G aperture with

super-quiet focussing. This makes it perfect for getting up close to subjects. High-quality optics bring excellent results and the lens is suitable for general use.

Price: £250

Contact: 01707 329999

Web: europe-nikon.com

Nikon AF-S DX Micro NIKKOR 40mm f2.8G



This lens is light, compact and above all perfect for goals such as photographing flowers, insects and other small subjects. Its 1:1 magnification ratio allows for life-like close-ups. It's fast to focus and Nikon's Silent Wave Motor ensures you won't disturb your subject.

Price: £175

Contact: 01707 329999

Web: europe-nikon.com

Nikon Micro NIKKOR 105mm f2.8



When you need a more flexible working distance for close-up shooting, this 105mm lens is ideal. It delivers exceptional image quality, a fast f2.8 maximum aperture and 1:1 reproduction ratio. It features the Silent Wave Motor and Vibration Reduction image stabilisation, but at a price.

Price: £629

Contact: 01707 329999

Web: europe-nikon.com

“A macro lens could measure any focal length, but a 30-60mm range is typically used for product photography and small objects”

“Be aware that the more you zoom in, the more you will have to compensate with the shutter speed”

Lenses for sports, action and wildlife

For action and wildlife photography it is essential to be at the heart of the action. But this is not always physically possible, so a zoom or telephoto lens is the next best thing. Most photographers wanting to get up close to their subject will use a camera with a crop factor as it makes a difference to the length of the lens; for example, a 200mm lens on a 1.6x crop becomes 320mm.

There are other aspects to be aware of with a longer lens, as the more you zoom in the more you will have to compensate with the shutter speed. A monopod can be a good accessory to have to hand as it provides the user with flexibility, yet it still adds that extra bit of support. Most zoom lenses also come with some type of image stabilisation feature. We recommend

you keep it on, but it could affect the continuous burst mode, so check to see how your particular Nikon model handles this. You may also find that this feature uses up the battery life on your camera faster than normal.

There are many lenses on the market to choose from and with long lenses they do become pricier the longer they get. This is because they are complex in their design as there are many elements that make up the construction. You want to be careful not to bash the lens when out on location – if one of the elements gets knocked out of place, it can be expensive to fix. You may not notice that it's broken until you get back to upload your images onto your computer and realise that they're all out of focus.

Take a look

Get in close to the action with a long zoom lens

Nikon AF-S VR NIKKOR 300mm f2.8



This telephoto zoom lens from Nikon has

a decent focal range and supports a nine-blade circular aperture, which creates a beautiful background blur and makes your subject stand out. It's an ideal lens for zooming in close to whatever action you're trying to capture.

Price: £2,800

Contact: 01707 329999

Web: europe-nikon.com

Nikon 55-300mm f4.5-5.6



This super-telephoto has a flexible range (35mm equivalent of 82.5mm to 450mm),

which is perfect for photographing wildlife from a distance. The Vibration Reduction II stabilisation system allows shutter speeds that are up to four stops slower and the Silent Wave Motor provides fast and quiet autofocus to avoid scaring off any shy, unsuspecting subjects.

Price: £259

Contact: 01707 329999

Web: europe-nikon.com

Nikon 55-200mm f4-5.6



The Nikon 55-200mm f4-5.6 lens is compact as well as lightweight, which is great

for travel shots. It comes with state-of-the-art optical technologies such as Vibration Reduction and Nikon ED glass element for a cheap and cheerful price.

Price: £119

Contact: 01707 329999

Web: europe-nikon.com

ACTION

Don't miss any moment and get into the heart of the action with a zoom lens

COMPENSATE

Make sure your shutter speed is set to compensate for the length of the lens. You may need to up the ISO to make up for this

EXPERIMENT

Creative angles can work well with sports and action photography, so try to experiment

STABILITY

Many lenses have the option to turn on the image stabilisation setting. This is recommended for action photography

Lenses for creative photography

Creative photography has become increasingly popular as the digital medium has developed. Effects such as fisheye and lenses like tilt-and-shifts are at the forefront of this advancement. It's not only the high-street consumer that has become fascinated by the alternative effects, as industry professionals are using them for their advertising and editorial work to try to produce something unique and eye-catching for their clients.

Tilt-and-shift lenses work by adjusting the lens's optical axis and controlling the depth of field. They can be tricky to use, and even professionals have admitted they can have problems with them. Architecture and fine art photographers are the most likely to use this type of lens as it can help correct barrel distortion, which is a common problem with architectural images shot from the ground. It can also be useful in the

city where the distance between the photographer and building can be restricted and a wide enough angle cannot be composed. The tilt-and-shift lens can also make subject matter appear as if it's miniature by blurring the top and bottom of the image. This type of effect is appearing in most cameras as a creative filter, so anyone thinking of investing in one of these expensive specialist lenses should first consider how much use they will get out of it.

Fisheye lenses are not as tricky to operate as the tilt-and-shifts and can simply be used like a normal lens. Fisheye lenses can be good for interior photography or where the photographer needs to get an extreme wide-angle view. There are some fisheye lenses that are subtler and some that are more extreme; the one you should buy depends on the kind of impact that you're after.

“Professionals are using creative lenses for their advertising and editorial work”

FISHEYE

The fisheye effect can work well with landscape, sport/action or even people photography

TILT-AND-SHIFT

Another creative effect, the tilt-and-shift lens has become highly popular in recent times



WIDE ANGLES

As the angle of the lens becomes wider, the image begins to look more distorted and curves the edges of the image around

POPULARITY

Industry professionals are using these creative lenses as they try to produce unique styles

Take a look

If you want to produce creative images then check out these lenses

Nikon Fisheye 16mm f2.8



Fisheye lenses distort reality, bringing the subject

closer, be and making your photos more dynamic. This is a full-frame, 180-degree fisheye with a bright f2.8 aperture for photographing in dim light or with fast shutter speeds.

Price: £329

Contact: 01707 329999

Web: europe-nikon.com

85mm f2.8 Tilt & Shift lens



The wide tilt and shift range enables hand-held tilt/shift photography

and the nine-blade rounded diaphragm creates a beautiful rounded, natural blur. It provides high optical performance for general shooting too, with a dust and moisture resistant body to protect it from harsh situations or conditions.

Price: £1,299

Contact: 01707 329999

Web: europe-nikon.com

Nikon PC-E 24mm f3.5 lens



For an ultra-wide tilt-shift effect, opt for the 24mm lens. This is perfect for

architectural and nature photography, with a tilting range of plus or minus 8.5 degrees for exceptional control. Three Extra-low Dispersion glass elements offer superior sharpness and colour correction.

Price: £1,465

Contact: 01707 329999

Web: europe-nikon.com

Essential kit for Nikon



Essential kit for your Nikon

Build up your kit list with these must-have camera gadgets and practical add-ons to enhance your shots

Buying a Nikon camera is an investment, whether it's a small compact camera for snapping holidays and events or a bigger DSLR model for professional purposes. When it comes to adding accessories to your camera, the choices are so vast and stretch from gizmos and gadgets that are fun play with to more serious pieces of kit such as tripods and cleaning equipment. Chances are if you're passionate about photography your kit wish is never-ending. You'll aim to build

as many options as possible to help you shoot better images and use different techniques to create standout shots.

We've compiled a list of essential accessories that marry perfectly with your Nikon camera and explain a little about how they'll help you. We start by looking at bags and cases to keep your camera safe, as well as make them easy to carry from one adventure to the next. We then move onto tripods, often the most bulky piece of equipment after your

camera itself, but one that's worth getting into the habit of using to give your images a professional edge. We move onto a selection of heads to fit with tripod models from the very basic to the more professional, more expensive options. Next we delve into Flashes and Speedlights and explain what the two terms mean and which model will offer the best results for your camera. We take a quick glance at remotes as well as SD Cards and the cleaning products you need to keep your gear in pristine condition.

Essential kit for Nikon



Tripods

Tripods are an essential piece of equipment to keep your images straight and let you play around with creative effects. Even the steadiest of hands can't produce clear long exposures free from camera shake so if you want to add a professional edge to your work then get one.

Weight and stability are the two major concerns when buying a tripod. You'll probably have to carry your tripod a fair amount so you want it to be light, at the same time

MANFROTTO BEFREE CARBON FIBRE (£248/\$305)

While anti-shake and stability software is becoming increasingly sophisticated in compact cameras, you'll definitely find yourself in situations where a tripod makes the difference between a good shot and a great shot. This travel tripod is lighter and more compact than ever and will perfectly suit both hobbyists and professionals alike. The carbon fibre support weighs just 1.1kg and can be folded down to just 40cm. It conveniently comes with its own padded bag too, so it's always comfortable and easy to carry wherever you go.

EYE-CATCHING

Befree Carbon's premium Italian design and graphics are eye-catching and attractive

“Tripods are an essential piece of equipment to let you play around with creative effects”

you want to be able to take the weight of your camera and not tip over from a gust of wind. When selecting a model check whether it comes with the right attachment for your camera and if it comes with a head. Professional tripods are often sold as legs only assuming that photographers will prefer to pick a tripod head that suits them. If you're purchasing online, be sure to ask the seller first before handing over your money.



VERSATILE

With a maximum height of 142cm and a smooth ball-head this tripod will suit every genre

PETITE

The tripod's folding system allows its legs to perfectly fold around the head, meaning it is effortlessly portable and compact

Keep it stable

Top picks in supports

VANGUARD VEO AM-295 (£65/\$80)

Vanguard produce top-quality tripods and monopods that any camera manufacturer would be happy to see their brand on, and any camera owner would be excited to own. The VEO



AM-295 monopod is lightweight but extremely durable, making it perfect for photographers on the go. It can take a load of up to 8kg, making it ideal for photographers with top-end kit, and it can be extended to an incredible height of 166cm.

GIOTTOS MTL 9251B ALUMINUM TRIPOD (£95/\$150)

Aluminium tripods are heavier than their carbon fibre cousins but the price difference is considerable. This entry level tripod is



compatible with most SLR cameras and can be bought with or without the standard adjustable head. Foam padding under the leg segments make the tripod easier to carry and better to handle in the cold. The bubble level at the neck of the unit makes straightening up your shot simple.

GORILLAPOD HYBRID (£35/\$43)

Gorillapod is a range of super flexible tripods that challenge you to shoot from new and extreme angles. The wrap-around legs let you position your camera almost anywhere



you can think of, as you simply shape the legs around a structure like a fence to secure it. The tilt knob lets you switch between portrait and landscape, while the release clip on the hybrid model makes for easy setup. The small GorillaPod unit is great for slipping into your camera bag.

NIKON COLLAR RING RT-1 (£179/\$220)

For serious photographers shooting with very big lenses such as the NIKKOR 70-200mm it's important to keep the weight of the lens stabilized while shooting. A collar ring is a



useful accessory to keep the tripod balanced while making sure the lens is able to move freely. Nikon's RT-1 tripod collar ring lets you switch quickly between vertical and horizontal so you can shoot portrait and landscape without too much adjusting of your heavy gear.

Tripod heads

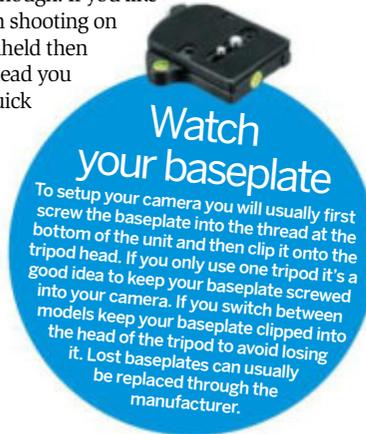
A tripod's legs are there to carry the weight of your gear, while the head is there to give you flexibility and movement while you shoot. Essentially, the head does all the work, as you twist and turn it into the right position to line your camera up with the shot. The price range of heads can range from the value-for-money midrange offers to purpose built but astronomically priced units. Heads will often match or even outprice tripod legs and that's because they're just as important in your gear list.

When choosing a head take note of the panoramic rotation and lateral tilt. This is how far you can turn your camera while it is mounted and how far you can angle

your lens up or down. Your choice of head will depend on your shooting style and whether you shoot photo or video. If you're starting out then a three-way head is a good option as it gives you flexibility and precision in a range of situations. A ball head, however, is a lot quicker to operate but can be a bit less precise – it's a good option for fast shooting though. If you like to switch between shooting on a tripod and handheld then be sure that the head you choose offers a quick release function.



“The tripod legs are there to carry the weight of your gear; the head is there to give you flexibility and movement while you shoot”



WEIGHT BEARING

The head is built to support up to 8kg, which is plenty for a DSLR with a kit lens

CONTROL

Friction control on all axes to balance camera equipment weight and three level bubbles for precise framing

ROBUST MATERIAL

The unit is constructed from aluminium to keep it strong, making it extremely long-lasting

MANFROTTO X-PRO 3-WAY HEAD WITH RETRACTABLE LEVERS & FRICTION CONTROLS (£100/\$123)

The X-PRO 3-Way Head is Manfrotto's most compact, precise and reliable three-way photographic head. It is extremely simple to pack up and carry thanks to its retractable levers that can be extended when needed. The inclusion of three levelling bubbles means that time spent post-capture tweaking and straightening images will be greatly reduced, and the friction controls and locking knobs allow for accurate frame and composition adjustments.

Change the angle Tripod heads to reposition shots



VANGUARD TBH-250 (£70/\$90)

This ball head from Vanguard features a micro adjustment fine-tuning knob, with the locking now giving you complete control to achieve maximum composition precision. Made from durable magnesium housing, this is a truly heavy duty ball head – it weighs just 450g, but has the strength to support up to 20kg, making it the ideal choice for photographers with even the most high-end kit. This ball head has two bubble levels and is supplied with the QS-60 quick release plate.



MANFROTTO BASIC TILT HEAD WITH QUICK LOCK (£78/\$80)

Constructed from lightweight technical polymer this basic tilt head is built for daily use – for amateur photographers it's a long-term, enduring investment. The quick release plate fits comfortably in your hands if you're shooting handheld and slips quickly and snugly into the low-profile receiver. A spring feature assists in tilt motion making it ideal to carry heavier, off-centre loads.



GITZO SERIES 2 MAG OFF CENTRE HEAD GH2750 (£175/\$215)

Introduce a unique perspective to your work with this off-centre ball head. The unconventional design gives you a wide range of movement and it's especially good for shooting macro and other ground level shots when set up with the reversed column configuration. The unit doesn't feature quick release, so it performs best on slower paced shoots where you won't need to quickly switch to shooting handheld.

Protect your kit

Robust but stylish camera bags



MANFROTTO PRO LIGHT CAMERA BACKPACK (£140/\$172)

This must-have backpack from Manfrotto offers outstanding camera protection, claiming to provide the highest level of protection and shock resistance. It offers interchangeable dividers, enabling you to adapt it to your own needs, as well as water-resistant fabric and three carrying positions for maximum versatility. There's even a UV protection system to stop your kit overheating.



LOWEPRO STREETLINE SH 180 SHOULDER BAG (£132/\$160)

One of the most popular brands when it comes to camera bags, this fantastic offering from Lowepro offers discreet protection designed with street photographers in mind. The Streetline SH 180 includes a collapsible FlexPocket, which provides suspended protection from impact when deployed, making it the perfect choice for storing and protecting your DSLR and other valuables while you're out on the town.



NIKON CF-DC8 CASE (£109/\$230)

Nikon offers a wide range of camera cases for its compact, mirrorless and DSLR releases, with each one tailored to a specific range. In fact, the CF-DC8 is aimed specifically at the flagship FX-format D500. With a small lens attached, you can keep your camera hanging round your neck from its strap, while the moulded case protects your kit from the elements. Its semi-soft casing absorbs unexpected knocks while keeping dust and dirt off the camera body.



Camera bags

Keep your kit safe by investing in a suitable bag or case – a dedicated camera bag with protective padding really is a must if you're spending a lot of money on kit. The range of bags on the market is astounding and you'll find one to fit your needs whether it's for adventuring with your camera or making a fashion statement.

Quality is the most important factor when choosing a bag; this will be what protects your camera so you should be sure that the materials used are up to standard. Also keep in mind the other gear and accessories you have to carry along with you. If you're

a Nikon DSLR user and you have plenty of lenses and flash accessories then choose a bag that accommodate all your gear. If you use a compact, something small and streamlined will do. Nikon produces its own range of bags designed specially for the cameras it manufactures such as the range for COOLPIX compacts.

The company's bag range extends into backpacks and shoulder bags which are great to carry your larger Nikon camera as well as necessary gear such as laptops.

TAMRAC HOODOO 20 (£120/\$120)

The Hoodoo series of backpacks from Tamrac have been designed with adventure in mind, enabling you to take your camera wherever you want to go. The Hoodoo 20 is conveniently three bags in one – a protective camera backpack, a removable camera shoulder bag and a stylish daypack – giving you ultimate flexibility. The gorgeous backpack offers easy access to your camera through the front opening, and can carry compact DSLRs and mirrorless camera systems along with extra lenses.

LAPTOP-FRIENDLY

The Hoodoo 20 will hold most 15-inch laptops and tablets in a dedicated protective sleeve

EASY ACCESS

The front opening means photographers can access their kit with absolute ease

DURABLE

Hoodoo packs are made with water resistant waxed canvas and PU coated ripstop material for durability



Lens Pouch (£13/\$13)

Make sure your lenses are well protected by investing in lens pouches from Tamrac. The Goblin lens pouches come in 6 sizes and a range of stylishly bright colours with prices starting from £13/\$13 to £23/\$23. The easy-to-operate drawstring fastening makes access simple and the quilted, ultrasonically fused interior provides basic protection. You'll never have to worry about your lenses getting bashed again.



NIKON SPEEDLIGHT SB-5000
 (£499/\$600)

Compatible with both FX and DX format Nikon DSLRs, the SB-5000 has been designed with professional shooters in mind. It is fast, reliable and versatile, offering superb performance both out on location and in the studio. This Speedlight operates as a hot shoe-mounted flash unit, wireless commander or remote unit – it's the first Nikon speedlight with wireless control and the all-new cooling system allows more than 100 rapid-fire shots to be captured with the flash operating at full power.

COMPACT

With a height of 73mm and a weight of 420g (without batteries) the unit is reasonably small and easy to carry around in your bag

POWER SOURCE

The unit is powered by four AA-batteries and can take rechargeable cells. You can carry spares in your kit bag in case you need them

TILT RANGE

The flash head tilts down to 7° or up to 90°, and rotates horizontally 180° to the left and right

Flashes and Speedlights

Using flash is about more than just shooting in low light and brightening up your image. It is an integral part of photography and learning how to use one effectively will increase your understanding of the photographic process and how light works. Most cameras – compacts and DSLRs – have built in flash that can be set to auto to fire when your camera thinks you need it or to use manually.

Buying an additional flashgun, however, gives you greater flexibility in the way you use flash (for instance by tilting the head up to bounce it off a surface) and gives you extra power too, letting you hone the result you want.

Most compacts don't have an option to add an additional flash but Nikon's 1 series cameras do. When it comes to DSLRs the range of flashguns available are enormous and can fit any budget from an entry-level unit to a professional model. When it comes to buying a flashgun you'll come across the terms flash and Speedlight. These are essentially the same thing. Speedlight is the trade name for Nikon's flash option and each product in their flash line carries the label.

Wireless speedlight

If you use a big lighting setup then a way to control it all from one place is useful. Nikon's Wireless Speedlight Commander 800 (£275/approx \$337) does just that. The SU-Creative Lighting system and with it you can set off numerous flashes. The LCD tells you what's connected and you can program it as you go.

“The adjustable tilt head lets you correctly bounce light and avoid the harsh result of direct flash”

Flexible lighting
 Our picks to illuminate images



SPEEDLIGHT SB-N7
 (£129/\$160)

Designed to perfectly fit the Nikon 1 range of compact, mirrorless cameras this flash unit has a tilt capacity of up to 120 degrees giving you a wide range of creative options for bouncing light, it also boasts a range of flash modes such as fill-flash and flash compensation. It's available in black and white to match the body of your camera. Having a flexible flash like this on as small a camera as the Nikon 1 is a real bonus.



SUNPAK PF30X FLASHGUN
 (£70/\$110)

Sunpak offers a flashgun that will suit any budget while still giving good results. While it's missing the tilt capability of its pricier alternatives, its simple options make it easy to use and reliable in any situation, leaving you with little to think about except getting the perfect shot. The auto focus assist light also helps you camera focus when shooting in low-light conditions. Check compatibility with your individual camera before buying though.



SIGMA EF-610 DG ST
 (£90/\$110)

The Sigma EF-610 includes an autozoom function which automatically sets the illumination angle by reading the focal length of the lens. It also includes exposure control to regulate the type of bounce and illumination coming from the unit. Though pricier than an entry-level model the Sigma unit is well built, practical and useful in a variety of shooting situations from studio to close-up. It has a guide number of 61 making it a powerful option for more serious low-light shooters.

Essential kit for Nikon



One or two cameras?

When shooting in fast-paced situations such as weddings, one camera might not be enough. To stop getting tangled between two straps, choose a solution that holds two. While it is more conspicuous than a simple strap, a product like BlackRapid's Double (DR1) (£99.95) can hold two cameras securely, keeping your hands free to change lenses if you need to.

Straps

Getting a strap for your camera is just as essential to protecting it as the correct bag. Besides protection they are also vital to allowing you to shoot comfortably and take your camera around with you while having your hands free to perform other tasks such as changing lenses. There are hundreds of straps on the market that you can choose from, some built to be practical and others to make a statement.

NIKON SIGNATURE STRAP (£22/\$27)

Stitched in Nikon's famous black and yellow, the company's line of standard camera straps are the perfect accessory for any model. Nikon's signature straps come with the camera model stitched into the fabric. You'll find one for the D5, the D500 and D750 among others. Straps vary in price starting from about £21.99/\$26.95. If you'd rather keep off the model name in case you decide to upgrade your camera, you can also get hold of a strap that only bears the Nikon name.

FABRIC

Straps are made from strong and hard-wearing woven fabric that's built for constant use

EMBROIDERED LOGO

Straps come with the embroidered Nikon name followed by the camera model you own

KEEP IT ATTACHED

The strap attaches by threading in to small hooks on either end of the body of your camera

“Nikon’s signature straps come with the camera model stitched into the fabric”

Make it secure

Keep your camera by your side



PEAK DESIGN SLIDE (£50/\$60)

This strap from Peak Design boldly claims to be the most versatile pro camera strap in the world. Its Anchor Link connectors enable it to be worn as a sling, neck or shoulder strap in order to suit almost any shooting style. The sturdy webbing combined with internal padding helps the strap glide effortlessly over all sorts of clothing, as well as staying in place when you need it to thanks to its side gripping. The strap comes in three colour combinations – classic black, navy and tan or red and tan, for an extra \$5.



NIKON WRIST STRAP AN-CP19 (£6/\$6)

This simple and very affordable product is essential if you want to keep your Nikon compact camera safe while shooting. The small loop threads through the small hole on the body of your camera while the bigger loop should always be firmly wrapped around your hand while snapping pictures to prevent dropping it. The strap also provides a comfortable way of carrying the camera around securely if you're shooting throughout an event.



NIKON LEATHER NECK STRAP AN-N2000 (£20/\$30)

Built for the Nikon 1 series of compact system cameras, this slim and stylish leather strap is built to hold the weight of small compact camera and still be comfortable to wear. The strap is available in a range of colours including black and white to match your camera, so it's a great option for the fashion conscious. The functionality is simple, and there are no frills to be had here, but they look stylish and can really help free up your hands.

Remotes

A remote is an extension of your camera that gives you added functionality by allowing you to control it without physically touching the unit. Remotes are available in two basic options: wired and wireless. Wireless remotes give you more flexibility for being further away from your camera even if there are objects between you and it. The wired options can limit you more but if you plan to use your remote primarily in a studio setup or for landscape photography then this option may suit you perfectly, and they tend to be cheaper too.

In its simplest form a remote will release the shutter of your camera when you press the release button. While this is useful when you need to make yourself scarce like when you're photographing wildlife, it's also practical for long exposures and landscape photography, as you don't need to touch the camera and risk movement in your shot. They can also be useful for self-portraits. Moving up from the basic models you'll find many remotes are built to control a wider range of functions such as shooting mode and focus too.

“Wireless remotes give you much more flexibility for being further away from your camera”



EXTRA SETTINGS
Control autofocus, video recording, continuous shooting and silent shooting and an optional added feature all from the remote

NIKON WIRELESS REMOTE CONTROLLER SET (£220/\$278)

This wireless remote lets you control more than just the shutter and you can use it to set up shots and change settings without having to go near the body of your camera. The set comes in three pieces with two controllers and one receiver. You can use both remotes on one camera or on two separate cameras to capture the exact same moment from different angles. A truly flexible shooting option that can really help you out.

COMPATIBILITY
This remote set works with specific Nikon DSLR cameras. Check your model before you purchase



RANGE
Using two devices gives you a maximum range of over 50 meters; with one device you can reach 20 metres



Get some more reach
If you're working with a plug-in remote, give yourself some extra reach by investing in an extension cord for your camera make and remote model. This is especially handy in studio sessions where you might set up the camera in a static position and move around the room as you shoot. When working with cables in a studio, though, always remember to tape them down to avoid a trip hazard.

Camera control
Fire the shutter off-camera



HAHNEL COMBI TF (£40/\$49)

This compact device puts you in control of shutter release, auto focus, continuous shooting, bulb mode and 4-second timer delay. It's available with different connections so be sure to buy the Nikon-compatible model. If you've after something simple that gets the job done then this is the product to add to your kitbag. The unit also attaches to the horseshoe of your camera for added functionality.



PHOTTIX TR-90 (£55/\$53)

This timer remote connects to your camera with an 80cm cable. It's available for different makes so specify you want a Nikon connection when buying it. The remote offers functions such as a self-timer, interval timer, long exposure timer and exposure count setting feature. It can perform up to 399 shots before being reset and perform time lapses up to 99 hours, so it's a useful product to use for creative projects.



NIKON INFRARED REMOTE CONTROL ML-L3 (£20/\$20)

This product is ideal for Nikon COOLPIX and Nikon 1 owners, as it's a simple remote that does the job without any fuss. The one button remote controls the shutter from a distance which makes it ideal to shoot group shots, self portraits or eliminate camera shake. It's also compatible with certain DSRL models. It's powered by infrared, so you'll need a clear line of sight to your camera in order for it to work. If this isn't suitable for your shoot you'll need a radio trigger instead.

Store the memory
The place to record your shots



TOSHIBA SDHC 4GB MEMORY CARD
(£4/\$5)

Approved by Nikon as compatible with the COOLPIX S30 camera, this memory card may be smaller in space than the rest, but when used with small JPEGs it offers more than enough memory and speed to keep snapping as much as you like. The card is available in sizes up to 32GB if you plan to shoot a lot at once and its reasonable price means you can invest in a few and swap out on shoots.



SAMSUNG EVO 8GB
(£8/13)

This standard SD card will work in a range of cameras and devices. With sizes ranging from 8GB to 32GB they're perfect for casual snapping, as well as those who plan to shoot more in one go or want to shoot video. RAW users may find they need more storage space. The card offers high-speed file writing and reading, letting you save images up to twice as fast as a conventional SD card and transfer up to 360 photos per minute.



SANDISK EXTREME PRO COMPACT FLASH 32GB
(£40/\$49)

Compact Flash cards are faster and offer more storage space than their SD cousins but they are pricier and they don't fit into all DSLR cameras. This high speed SanDisk card is available from 16GB to 128GB and offers write speeds up to 90MB for the smaller cards and up to 100MB for the 128GB card. The price of these make them an invest in themselves but one that's well worth it if speed matters to your photography.



Memory cards

Most cameras work by saving images and video files to a storage device such as an SD or MicroSD card which slot into the camera. These memory cards come in different sizes – the bigger the card the more images you can shoot before you run out of space. It's not always a great idea to use a huge memory card to store all of your images on, though, as if it corrupts you will have lost the entire shoot. Sometimes it's better to split a shoot over a series of smaller cards.

When you buy your camera the accompanying manual will tell you what type of card fits into the unit.

Nikon releases a list of SD cards compatible with various makes of camera too. Check their website to make sure that if you're buying another name brand it will work in your camera and that you'll be able to make full use of it's speed and features. You'll need to format your cards regularly to make sure they are operating at their best with your camera, and make sure you back up your shots as often as you can to make sure you don't lose them.

TRANSCEND SDXC 128GB
(£65/\$80)

Built to keep up with professional photographers, the Transcend SDXC card offers a super fast 90MB/s read and write rate to keep up with fast shooting so you don't miss the action. The card is available from 8GB all the way up to 128GB, with the bigger cards being ideal for shooting high-quality video. Additionally, the top-tier MLC NAND flash chips that are located inside provide consistent long-life durability and endurance. It even comes with exclusive RecoverRx photo recovery software.

BUILT-IN PROTECTION

The flash chips provide consistent long-life durability and endurance and come with a lifetime limited warranty too

QUICK TRANSFER

With high-speed transfer it's easier and quicker to back up your images and empty cards for their next use

PLENTY OF SPACE

Bigger cards are a good choice if you shoot video or capture images in RAW+JPEG

Keep your cards safe

SD cards may be small, but damage to them equates to damaged images so keeping them safe and protected is extremely important. Make sure you always have a case handy to store them in, whether it's a bigger case that can hold a lot and offer maximum protection or a smaller wallet that will slip easily into your kit bag like the Think Tank Pixel Pocket Rocket (£12/\$15).



PROTECTIVE MATERIAL

The soft fibers on the lens pens won't scratch or damage lens or filter surfaces, unlike some fabrics. You can use them as many times as you like without having to be cautious about the marks they might leave behind to expensive kit

NIKON LENS PEN CLEANING KIT
 (£49.99/\$50)

Dirt on your lens is the surest way to ruin a perfectly good image so making sure it's always dirt and dust free is very important. This kit contains three cleaning pens to brush away marks and smudges from the surface of lenses, filters and camera viewfinders. A regular dusting will save you a lot of time having to edit out dust on your images, which can be particularly fiddly if it falls over complex areas of the shot.

EASY TO CARRY

The case is made from 100% nylon and is small enough to carry in your camera bag or backpack with ease

ATTACK FINGER PRINTS

The pens are ideal to remove finger prints and smudges from your lenses, leaving your shots free from annoying marks



Protect your viewfinder

Your viewfinder is as precious as your lenses, so add a protective covering to prevent scratches. You could pick a touch glass viewfinder or plastic sticky covering. If you would prefer something more elaborate the Flipbac Angle Viewfinder (£33.55/\$20) might do. With the covering on you can simply wipe to keep it clean as many times as you need to.



Cleaning products

The more you clean and maintain your gear the longer it lasts and the better it performs. Cleaning products need not be complicated and if you do it regularly you'll avoid having to do any heavy-duty maintenance. Keeping your lenses, viewfinder and sensor clean is vital to keeping your camera working well and producing good images. But making sure there's no dirt on the body of the camera that can slip into the SD card slot or battery chamber is just as important. If you take due care that your camera doesn't get dirty then cleaning becomes easier too.

Always replace lens caps as soon as you can and never leave your camera body exposed without a lens on or a cap to protect it. If you've been on a shoot outdoors, especially on a beach or dusty area, then take the time to clean your kit and remove any sand particles before packing it away. For compact camera users a soft cloth and a gentle wipe is sufficient. If you've used a tripod in the sea, it's also important to wash it off with clean water when you get home to avoid rusting. Regular maintenance is so important to keep your kit healthy.

“The more you maintain your gear the longer it lasts. If you take due care that your camera doesn't get dirty then cleaning becomes easier too”

Keep it clean
 Ways to remove the dirt



KINETRONICS SPECKGRABBER
 (£7/\$8)

Get rid of a pesky bit of dust on your or lens with a SpeckGrabber pen that has an adhesive surface to simply pick up the dirt and remove it. The pen works best with spots, hairs or dust you've identified as being a problem, and all you have to do is simple dab up and down until the problem piece of material has been removed. You can get replacement tips to use when the old one has become less sticky.



NIKON CLEANING CLOTH
 (£12/\$15)

An all purpose cleaning cloth is a great addition to your kitbag to keep your camera body, lenses and other accessories dust free and in pristine condition. This cloth from Nikon folds up into a tiny pouch that can clip onto anywhere in your kitbag, making it easily accessible for a quick wipe before you start shooting. The soft fabric won't scratch or damage your kit, and acts as a compact way to remove dust particles when out on a shoot.



NIKON CLEANING BRUSH BU-1
 (£15/\$8)

This simple brush can slip into any camera bag and is built to clean out the battery chamber of specific COOLPIX cameras. Keeping the chamber clean and free from unwanted debris helps to maintain the performance of your camera and should become part of your cleaning process. Simply slip the battery out, give the chamber a brush and reinsert when you're done. If you were to use an ordinary brush you may find the bristles remain behind, causing even more problems.



Using Auto mode, you don't have to worry about understanding exposure

The Auto mode usually does a pretty good job at getting the right settings for you, especially on scenes with simple lighting



Auto mode

Discover the benefits of shooting in Auto mode and get inspired to step up to scene modes or manual settings as you gain some confidence

The Auto mode is the most noticeable icon on the mode dial and it's also the most basic option. Designed for complete beginners, the Auto mode doesn't require any input from the photographer when it comes to selecting your exposure settings, meaning your only role in the process of producing a picture is to point your Nikon at the scene and press the shutter.

Many mistake the Auto mode for being the best option when it comes to taking a quick capture. Although it's probably the most familiar, there are much better modes to select, including specific scene mode options and the Programmed Auto mode, which we'll cover a little later on. If you're working with a relatively new Nikon camera, you can discover more about them using the Guide mode setting too.

Using Auto mode, however, means you don't have to worry about understanding exposure. The Auto mode works by evaluating the lighting in a scene and determining what shutter speed, aperture setting and ISO you will need to shoot at. The camera will even consider the automatic use of

flash. Auto cannot recognise what subject you are shooting, however, so although you'll often get a good, even exposure, the settings may not offer the most professional results. Portraits for example are unlikely to include an artistic shallow depth of field effect (blurred background), as the camera has used larger f-numbers for the best even exposure.

As you're without control over the exposure, use your Auto mode in other ways. Use it to concentrate on developing your eye for composition, for example, as you don't have to worry about settings. Focus on framing well-balanced landscape scenes and positioning models effectively in portraits. Advancing your skills in this area as a beginner will be useful when you begin to explore more advanced modes. Knowing what makes a good

image is essential; the right exposure settings comes next.

Alongside the Auto mode, your mode dial may feature a 'Flash off' mode. This is essentially the same as the full Auto mode but it instead prevents the camera from selecting the flash automatically during an exposure when you may not want it. Use this mode when you want automatic results but want to avoid flash illumination on your subjects.

Although it's the least creative mode on your camera, you'll find the Auto mode useful for improving your framing skills. Once you're ready, explore the fantastic array of scene modes on offer before advancing to the step-up Programmed Auto mode and then further to Aperture Priority, Shutter Priority and full Manual control.

“Using Auto mode, you don't have to worry about understanding exposure. Use it to concentrate on developing your eye for angles and framing”



Shoot with your Landscape scene mode selected and you can capture vibrant vistas that are full of colour and light

Landscape mode

Capture vibrant vistas using the Landscape scene mode. Ideal for those who love exploring the outdoors, this setting will make the most of the scene by increasing overall image contrast and colour saturation. You'll notice in particular that blue and green hues really stand out in this mode, which helps to create a bold, picture-perfect shot.

To ensure you get the best exposure in camera, the Landscape scene mode will also

select a smaller aperture setting to shoot with, which increases depth of field. This results in the landscape appearing much sharper in the foreground, remaining sharp onto the background.

If you're shooting in bright conditions, you'll be able to photograph with the camera handheld. Low-light landscape scenes that are taken during the golden hours (sunrise and sunset) may require a tripod support. Supporting your camera avoids

camera shake, which is a result of camera selecting slower shutter speeds for an even exposure.

In Landscape scene mode you won't have to worry about getting a good exposure, and you can focus on framing. Follow traditional photographic rules such as positioning the horizon a third of the way up for balanced compositions. Experiment with perspective, too; changing your vantage point can often completely transform a scene.

Close-up mode

Use the Close-up scene mode to capture abstract and detailed still life shots. It's an ideal mode for photographing flowers, food, and jewellery. It works by selecting a wide aperture, which creates a shallow depth of field effect, perfect for isolating a subject from a background.

For best results, choose well-lit areas or soft window light indoors. You can use flash in this setting too, useful for illuminating subjects that are backlit. Remember when shooting up close, you want to capture detail, so pay attention to how light falls. Have enough contrast in the scene to add a sense of depth.

It's important that you use the correct focusing mode too. Close up captures that are out of focus

are noticeable. Use your autofocus mode and select a specific area on your subject for the camera to focus on. Alternatively, use your manual focus setting, which offers more control over where in the frame the shot will appear in focus. You may find that some standard kit lenses are limited when it comes to focusing, as all optics have a minimum focusing distance. Specialist macro lenses however, are designed to focus incredibly close to subjects, which is ideal if you want to capture true macro shots or abstract images. Don't forget to use your tripod when photographing close-ups too to stabilise your camera, ensuring clear and crisp results that are free from devastating camera shake.

“Close-up mode is ideal for photographing flowers, food, jewellery and many other interesting items”



Get some great close up shots of your subject using the specialist Close-up mode and a macro lens

Child mode

It's difficult to get sharp and focused shots of kids while they're playing, but by using the specialist Child scene mode, it's possible. Unlike Portrait mode, the Child scene mode is designed to freeze action but still promises to deliver flattering portrait results at the same time.

Using this mode, the camera will automatically select faster shutter speeds, which are ideal for capturing energetic kids and adults. Switch to Child scene mode icon to photograph children's parties or play dates at the park. Activities that involve a lot of movement, however, will require Sports scene mode, as it's capable of higher shutter speeds, which are necessary for fast-paced action shots.

As the Child scene mode is an extension of Portrait, you'll find it

also has a flattering effect on your young model's face. Skin appears softer in pictures with clearer colour tones too just as in Portrait mode.

Although the Child scene mode can produce great results in a lot of situations, you don't always have to use it when photographing your kids. Provided they are sat relatively still, you can shoot some great close-ups with the standard Portrait scene mode, which will create an artistically blurred background effect too – a result of the camera selecting wide aperture settings. As a rule, you should only need to use the Child scene mode when there's unfolding action and you're afraid to miss a priceless moment and great shot. In those situations it is a very useful mode indeed.

“The camera will automatically select faster shutter speeds, which are ideal for capturing energetic kids”



Use the Child scene mode to photograph your kids at play. With fast shutter speeds you won't miss a minute of the action



The Child scene mode has a flattering effect on skin tones so you'll get fantastic action-packed portraits



Work in the Sport mode to freeze any fast-moving action on the pitch. Using faster shutter speeds, you'll get clear crisp results



The Sport mode is ideal for wildlife and pet photography too as you'll be able to freeze unpredictable movement

Sport mode

Avoid capturing blurry action shots by freezing it as it unfolds using the dedicated Sport scene mode on your mode dial. You don't have to shoot just sport with it either; it's useful for other action packed activities too, and can come in handy if you're shooting wildlife or pets.

Use Sport mode if you're shooting a local football team, surfers on the beach or kids riding their bikes, and you're in a better position to be able to capture all the action as it happens.

In fact, the Sport scene mode works in a similar way to the Child scene mode, but uses much faster shutter speed settings and disables the use of flash. With faster shutter

speeds assured in this mode, you'll be able to shoot handheld and get up close for dynamic shots from a more unique perspective.

To ensure your subject appears sharp and in focus within the final photo, always check that you're using the correct autofocus setting too. Continuous AF or Tracking AF are ideal for use with your Sport scene mode setting, as they will keep your subject in focus as they move.

Action-lovers can use Sports scene modes while they are learning, but stepping up to Shutter Priority mode will let you take more control. Until then, Sports scene mode can help you get some stunningly sharp photos.

“With faster shutter speeds assured in Sport scene mode, you'll be able to shoot handheld and get up close to the action for more dynamic shots”



Setting a wide aperture in your Aperture Priority mode will result in an artistic shallow depth of field effect



A mode

Discover some of the fantastic creative effects you can achieve using your camera's Aperture Priority mode, which lets you control the depth of field

Aperture Priority mode is marked simply as 'A' on your Nikon's mode dial and is a manual-enabled mode. You can select a suitable aperture for your shot, while the camera is responsible for determining the ideal shutter speed for the best possible exposure. Aperture Priority is particularly useful for step-up users who are keen to explore the creative possibilities of manual control, without having to grasp the balancing act of exposure – which is something you need if you're working in Manual mode.

Most photographers use Aperture Priority to control depth of field in their photos. Depth of field determines how much of your frame is in focus. A shallow depth of field creates an artistically blurred background, which is popular in professional portrait photography and still life. The effect is created using a wide aperture setting, or what's known as a small f-number (between f1.4-f5.6). The wider the aperture, the more light that is let through the lens, which is why faster shutter speeds are generally set with them so as to avoid overexposing the image, something which is difficult to rescue in the post-production stages. Although wide apertures provide more creative results, you need to be wary of extreme settings. By using small f-numbers, such as f1.4, you will be limiting your focus range considerably, which

may result in only parts of a model's face appearing in focus when shooting portraiture, for instance, which is obviously not desirable.

When you're exploring the Aperture Priority mode, it's important to remember how f-numbers relate to settings. The smaller the f-number, the wider the aperture and so the shallower the depth of field. The larger the f-number (f8-f22) however, the smaller the aperture is, which results in more depth of field – the image appears in focus from front to back. Large f-numbers are popular with landscape photographers as they can ensure the scene appears sharp in the foreground, right through to the background. For clear landscapes shots, start in f-numbers around f11; the camera may opt to select slower shutter speeds as a result so have your tripod at hand to stop camera shake.

The lens you're shooting with determines the aperture settings available. Check the top of your lens to find what aperture range it offers. Top-quality lenses generally offer wider aperture settings but are also more expensive. Experiment with your Aperture Priority mode to determine

how essential wide apertures are and whether it's worth investing in a new lens.

There are many creative uses aperture offers, which is why it is a popular mode for venturing out of the comfort of auto. Using the sweet spot, or focused area, which is created by wide apertures you'll be able to take great artistic images. Another advantage is that a wide aperture can let in more light: great for low-light conditions like indoor parties. Explore your aperture range and discover how it can really affect the outcome of your images.

“There are so many creative uses aperture has to offer, allowing you to take some artistic images”



P mode

Give yourself a better understanding of exposure by experimenting with your Programmed Auto mode, a much more flexible setting than Auto

The Programmed Auto mode is marked as 'P' on your mode dial. It's all too often overlooked as being a straightforward auto setting but, in fact, it offers a lot more flexibility, which makes it one of the best modes to explore after you get out of Auto and scene modes.

Using Programmed Auto, the camera will determine the best combination of aperture and shutter speed for an exposure. There's still room to be creative though, as you can take control over the final results by adjusting settings as you shoot, which makes it a more flexible mode. By changing one of the settings during a shoot, the camera will take care of the other, ensuring you still get an even exposure. Programmed Auto is capable of roughly determining what it is you're photographing so that you get the best settings for the shot, this makes it a great mode to explore if you're ready to take the next step.

Unlike the standard auto mode you'll also be able to adjust other camera settings, including flash and ISO among others. You can set your flash to illuminate low-light scenes or fill-in shadow areas on a backlit shot, but if you want to work without

flash, experiment with adjusting your ISO. ISO is an important part of the exposure puzzle, as it essentially increases the camera's sensitivity to light. This means that if your ideal shutter speed and aperture won't expose the image well enough, you can up your ISO to help lighten it up. Be wary of high ISOs settings, however, as they can produce noise within the image. If you're unsure, revert back to auto ISO and let the camera take care of it.

Once you've selected the Programmed Auto mode on your mode dial, the camera will meter the light through the lens; it will then determine exactly what settings you'll need to shoot. From this, you can make further adjustments depending on what it is you want to incorporate into the scene. You may notice, for example, that the aperture setting is narrower than you would like. To adjust

it and get a shallower depth of field effect, simply rotate the command dial to set a smaller f-number. The same can be done to adjust shutter speeds too if you want to freeze action or add motion blur.

As Programmed Auto can produce endless exposure combinations, you can use it to shoot absolutely anything that you could want to. However, if it's really creative effects you're after, you have to progress to your full Manual mode or the Aperture and Shutter Priority settings. In the meantime, use Programmed Auto to help improve your understanding of exposure. When you're ready to work in Manual mode, take the same settings from Programmed Auto and see first-hand how slight alterations can affect the outcome of your shots. This really is a great mode for beginners looking to progress their skills.

“Spend time experimenting with different aperture and shutter speed combinations, which you can then compare to see what really works for you”



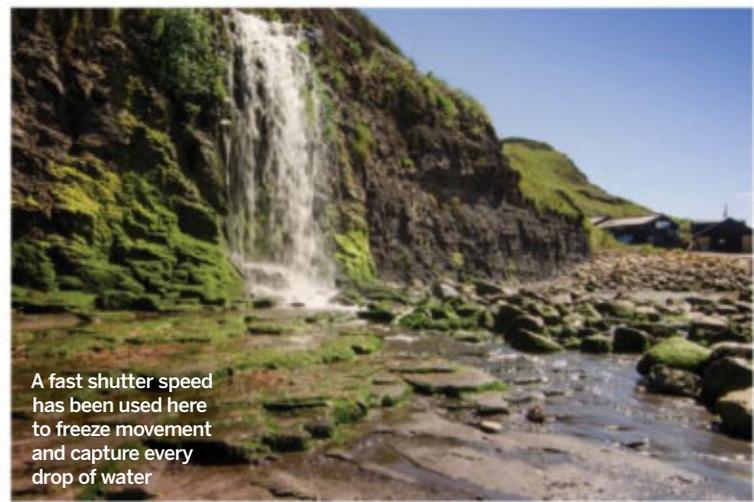
Programmed Auto is a more flexible shooting mode for beginners



In Programmed Auto you can experiment with setting combinations without having to fully understand exposure



Use a slow shutter speed to blur moving water, creating an artistic effect that really stands out



A fast shutter speed has been used here to freeze movement and capture every drop of water



S mode

Learn how to freeze action and incorporate motion blur in your shots using the Shutter priority mode, a great setting for action shots

Now it's time to rotate the mode dial around to S to select the Shutter Priority mode. It works in the exact opposite way to the Aperture Priority mode, in that while you select your ideal shutter speed, the camera takes care of the aperture to ensure a balanced exposure. Using the Shutter Priority mode, you'll be able to experiment with shorter or longer exposure times.

Using this mode on your Nikon camera, you'll be able to determine how much light reaches the sensor from the lens. Faster shutter speeds, that are only a fraction of a second, will let in the least amount of light, so to avoid underexposing your image, the camera will compensate by using wider aperture settings, to let in a larger volume of light. Fast shutter speeds are ideal if you're shooting action-packed images, as they're quick enough to freeze movement, preventing blurry shots. Always work with faster shutter speeds if you're photographing children, wildlife, sports or pets.

Slow shutter speeds on the other hand, can range between 1/60sec to a full 30 seconds. An increase in exposure time means you'll need to use a tripod to ensure you get a steady shot. As a general rule, it's still possible to shoot handheld with the camera, provided you're working with shutter speed settings that are no slower than 1/60sec, depending how stable your handling of the camera is. To avoid

overexposing an image that has a longer exposure time, the camera will set a smaller aperture, which will reduce the amount of light that's let in through the lens to the sensor. If you're working with extreme long exposures however, you'll need to use an ND filter to further reduce the amount of light that passes through the lens. ND filters are commonly used by landscape photographers who want to capture cloud movement or misty water effects in their scenes, by extending shutter speeds and using smaller apertures for increased depth of field. Generally, long exposures are ideal if you're shooting stationary subjects under low-light conditions or at night. Some cameras even offer what's known as a Bulb mode, which means you can open the shutter for as long as you like, until you opt to press the shutter release button again.

There are plenty of other creative shooting techniques you can explore. Panning, for example, is a fantastic way to illustrate speed in a sport or energetic subject. Simply set a slow shutter speed of around 1/50sec and focus on your subject. Once you open the shutter, you'll need to pan with them



Use your Shutter Priority mode to incorporate a sense of speed in your shots. The camera will determine the aperture for an even exposure

until it closes ensuring that you minimise shake as much as possible. The results should allow your subject appear nice and sharp while the background is softly blurred. You can also create a zoom burst by zooming out quickly while the shutter is open for a creative, directional blur.

You'll find some fantastic shooting techniques are possible in Shutter Priority mode, which makes it worth experimenting with a bit before you're ready to step up to full Manual mode.

“Using Shutter Priority, you'll be able to experiment with much shorter or longer exposure times”



M mode

It's finally time to take complete control over your exposure settings in Manual mode and discover all of the creative possibilities available

The Manual mode is the most advanced option on the mode dial, as it can offer complete control of your exposure settings. Rotate the dial round to M to select the manual mode on your Nikon camera and program in your ideal shutter speed and aperture setting. Using the Manual mode, you can experiment with different photographic effects and techniques, offering you complete creative control over the outcome of your images, though this will take a bit of trial and error.

It's a good idea to get a basic understanding of what makes a balanced exposure. You can find this out exploring the Programmed Auto, Aperture and Shutter Priority modes first. Using these modes you can select either your shutter speed or aperture setting while the camera takes care of the rest. When you're working in these modes, pay attention to how the camera compensates for the setting you select as this will help when you move to manual. If you're working with a wide aperture, notice the shutter speed setting that the camera opts for. You can dial in these settings as a starting point using the Manual mode, and begin exploring different combinations of shutter speeds and apertures.

When you're working in Manual mode, select a shutter speed, remember faster speeds freeze movement, while slower ones capture motion. You can then select your aperture, remembering that the smaller the f-number the wider the aperture. Wider apertures create a shallower depth of field, which is fantastic for close-ups and portrait captures, while a narrow aperture (high f number) keeps the focus sharp from front to back.

As you're setting your exposure, preview the light meter, which is visible inside the viewfinder. This will then give you a clear indication as to whether your settings will under-, over- or correctly expose the scene. Based on this, you can adjust your exposure settings until you're ready to shoot. Ideally, the marker should appear below 0. If it's too far to the right, your shot will appear

underexposed; if the marker is too far to the left it will appear overexposed.

After you've taken your shot, preview it on the screen. Check the histogram, which lets you know how much detail you've managed to capture in the shadow and highlight areas. A histogram of a well-exposed photo should show a mountainous range in the middle; it shouldn't spike up at either end as this means you may need to re-adjust your settings.

Once you've got a good grasp on how to achieve a balanced exposure, you can explore other creative photographic possibilities. With a tripod you can extend the shutter speed when photographing a seascape and water will appear as mist. You can also discover the potential in wide apertures by embracing the shallow depth of field effect when photographing portraits. Try to experiment.

“Using the Manual mode, it's possible to experiment with different photographic effects and techniques, offering you complete creative control over images”

Use a narrow aperture to keep it sharp from front to back



A wide aperture will cause the areas surrounding your focus point to blur out



Using your Nikon

Essential techniques for taking great photos with your Nikon

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Get the hang of this tricky technique

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Enhance your Nikon's creativity with filters

“For landscapes, we can control natural light with filters”



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Using your Nikon



Works best with
**Nikon
D5**

COMPOSITION

This amazing sunrise shot demonstrates the importance of strong composition when you're trying to create a striking and attractive image. The row of beach huts acts as an effective lead-in line

Composing images with your Nikon

Understanding the principles of composition can help to complement your natural eye for an image. Here is a guide to the rules and how they're best applied



© Rod Lawton

“Just by changing your own viewpoint, you can completely change the appearance of the photo”

▲ SHAPES

Shapes are one of the simplest compositional elements and work especially well as silhouettes. Here, a long focal length has isolated this boy sitting on a rock against the glow of a setting sun

▶▶ ANGLES

The jagged, angular feel of this picture was deliberate and has been emphasised by the zig-zag arrangement of lines

Composition is the way you organise the different elements on the scene in front of the camera.

It's tempting to imagine that the world is just the way it is, and all you can do is just turn up, point the camera and take the picture, but there's a lot more to it than that. In the real world it's usually not possible to move objects around to fit your ideas – but you generally don't need to. Just by changing your own viewpoint, and sometimes the focal length of the lens you're using, you can completely change the appearance of the photo and the objects within it.

Composition in photography is like the rules of grammar in writing. If you don't put what you think in the right order, using the right words, with the right punctuation, no one's going to understand what you're trying to say. It's the same in photography. If you just shoot at random,

your pictures are going to look visually incoherent with no clear point of focus or meaning. But with a little compositional awareness, it's possible to draw the viewers' attention to your subject, create interesting juxtapositions between objects and get them to see and feel exactly what it is that you want them to.

Composition isn't just about making the meaning of your pictures clearer, though. Photographs can also be satisfying, challenging or intriguing on a purely graphic level, and this is down to the arrangement of the shapes, tones and lines in the picture.

The best-known 'rule' for creating graphically pleasing pictures is the 'rule of thirds'. This says that you should never put your subject in the centre of the frame, but a third of the way from the top or the bottom, or from the sides. In fact, many cameras can display grid overlays on the

LCD or in the viewfinder, which show you exactly where these 'thirds' are. If you were shooting a landscape, for example, you might position the horizon on the lower horizontal 'third' and a solitary tree on the left or right vertical 'third'. This is a pretty weak kind of rule, though. It's a good fallback if you can't think of a more interesting way of composing the picture, but that's about all. If you see an arrangement which you think looks better, you should use it.

There are other 'rules' to follow. For example, you must make sure that your subject is looking into the frame rather than out of it, and you should avoid any composition that leads your viewer's eye out of the frame. But maybe you want to emphasise the symmetry between the landscape and the sky, or the central, isolated position of a lone tree? Maybe you like having your portrait subject looking ▶▶



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◀ LINES

Lines are often implied rather than obvious. This line of boats carries your eye in a gentle curve from bottom left to upper right

▲ MOVEMENT

This is the classic example of the perspective and 'movement' of lines converging in the distance. These lines can go both ways, though! Because the train is pointing forwards, the 'movement' is from top left to bottom right



© Rod Lawton

EXPERT ADVICE

Dennis Reddick

Web: www.dennisreddickphotography.com

Dennis Reddick is a professional photographer who spends his time shooting stunning landscape shots of Britain's South Coast using a selection of lenses and polarising and graduated filters. Here he talks to us about his views on composition.

Composition clearly plays a big part in your photography. Do you believe in 'rules' of composition?

'Rules' are simply guidelines to help individuals think about composition. They are not cast in concrete or anything like that. If you did manage to make up a viewfinder with the lines embedded in the viewing screen and followed that consistently, you would more than likely ultimately wind up with some unexciting images. You can think about the 'rule of thirds' when preparing to make an image and see if it works for the given situation, but don't let it get your imagination stuck in the mud.

Do you plan the composition of a shot as you take it, or trust experience and instinct?

Experience and instinct, mostly, which can only be enhanced by going out with your camera on a regular basis. There are occasions when I've seen an image by a fellow photographer and I've added a slightly different angle which, to my mind, may add a bit more character to the whole scene.

How long do you spend composing photographs, and do you aim for one single 'right' one or take a variety?

Believe it or not, with about 90 per cent of the photographs from my website I have intentionally gone for that one 'right' shot. I tend to stay with the camera fixed in one position for composition and shoot various exposures, especially at sunrise and sunset.

What do you think is the single most important thing to get right when you frame a shot?

Making sure there is no unwanted object or empty space which distracts you from the main subject. If I shoot an individual object I tend to compose it so that approximately two thirds of the area is filled. I have taken images with space as the main concept, but you have to be careful that it doesn't detract from the whole image.

Do you have a favourite editing technique for enhancing your shots later, such as burning in, for example, and why?

If I want to add a bit more depth or clarity, I tend to duplicate the image and add a slightly darker exposure and erase the unwanted bright areas. I then add a duplicated 'bright' exposure to the unwanted dark areas. I find on some images this gives me more punch throughout the photograph than when using the levels or curves.

▶▶ out of the edge of the picture, because it hints at some unseen event and introduces a note of tension or unease? Rules are there to be broken, especially rules of composition, but this only works if you know what they are in the first place, and you break them clearly and deliberately and for a reason.

The arrangement of objects and shapes affects the meaning and mood of the picture, and they also affect the sense of 'movement' in the image. The eye doesn't absorb the whole photograph in a single instant as a static image. Your eye moves from one object to another, sometimes in curves, sometimes in zig-zags. This movement is a key part of the photograph's appeal, or at least the extent to which it holds your attention. It's perhaps why you can quickly get bored with a photo that initially looks great, but become more and more fascinated by one which doesn't have a big initial impact but does have a lot of compositional complexity.

The most obvious way to create this 'movement' is with lines. These can be very literal, such as railway lines converging in the distance, or 'implied', such as the direction of the subject's gaze in a portrait. Pictures can have a single, dominant line or they can have a number of lines which direct your gaze in a certain direction, following a certain route around the picture, or form a more complicated interlocking structure.

Shapes are very important in photography, too. They might be easily-recognised shapes such as human figures or silhouetted trees, for example, which gain extra power when they stand out starkly against a contrasting background, or they could just be areas of tone rather than specific objects. These are just as important in terms of composition, however, because they contribute towards any picture's feeling of 'balance'.

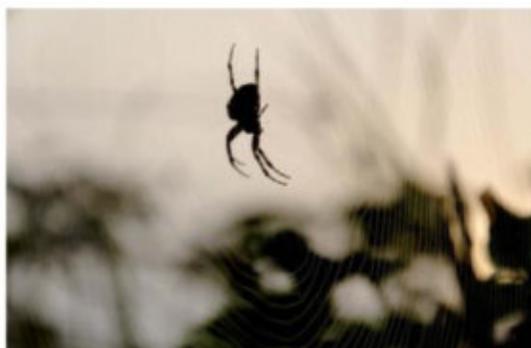
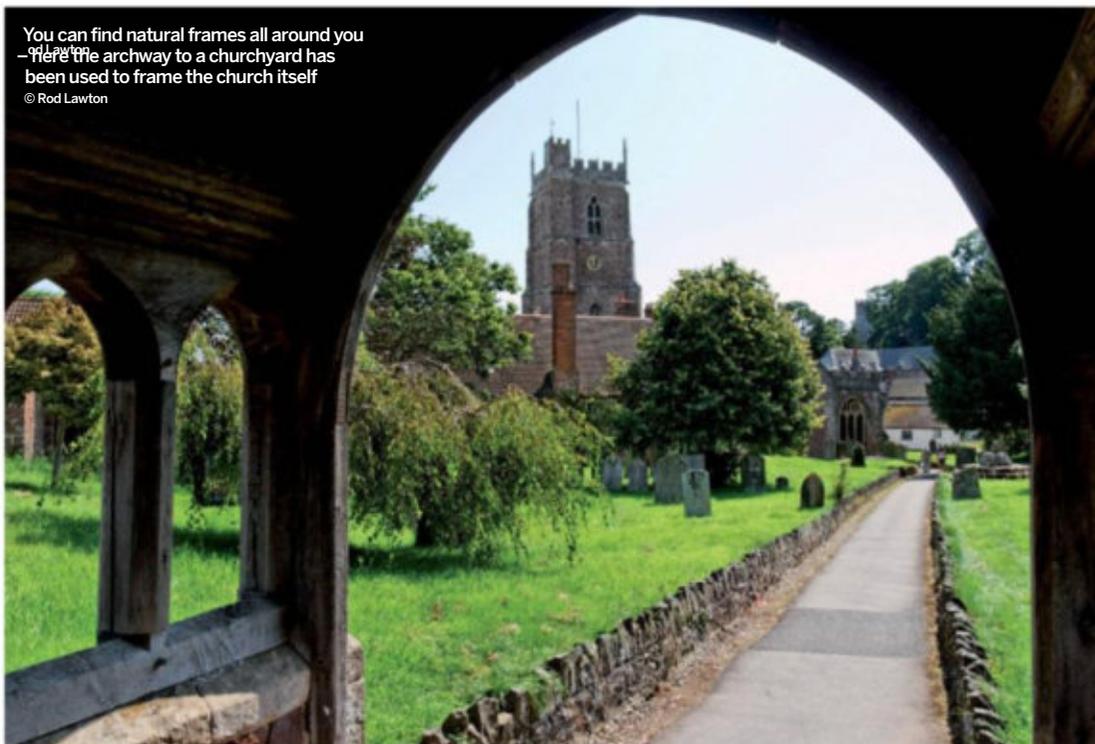
Shapes can be used as natural frames to draw attention to your subject and to prevent the viewer's gaze from wandering out of the picture. Look out for archways, overhanging branches, gates, hedges... you can find natural frames almost anywhere.

Composition is part-science, part-instinct. The science is the way elements of the picture work together and affect the way you see it. The instinct is the way you as a photographer combine those elements in your own unique way.

◀ CHANGES

There are many different ways you can shoot the same subject. The spider's web in the shot on the far left has been used as a framing device to focus attention on the spider itself. With a very small change in viewpoint, the shot on the right shows that you can produce a totally different result. Here the spider's been silhouetted against the early morning sky to emphasise its shape

You can find natural frames all around you – here the archway to a churchyard has been used to frame the church itself
© Rod Lawton



Focal length and perspective

We normally think of zoom lenses simply as a tool to 'get more in' or bring distant objects closer, but in terms of composition there's a lot more to it than that. Instead of using the zoom to change the size of the subject, try moving closer or further away and then adjust the zoom to keep the subject the same size. What you discover then is that the focal length you use has a big impact on the relationship between your subject and its background. A short focal length makes you get closer to the subject and makes the background look smaller and further away. A longer focal length means you move further away, and this makes the background look larger (it's simple geometry really, but the effects become obvious when you try them out). Telephoto lenses effectively 'enlarge' the background, making it easier to find neutral areas to act as a backdrop for your subject, or to emphasise the scale of a landscape. It's often said that wide-angle lenses exaggerate perspective and that telephotos flatten it, which is another way of saying the same thing. Stop thinking of your zoom lens as a substitute for walking, and start using it as an aid to composition.

LEADING LINE

This shot of a stone jetty heading out into the water is an excellent example of a leading line, created with a peculiar combination of angle and perspective, as well as low light

Stay sharp

Capture your sharpest shots ever with this genre-by-genre guide to the focusing techniques you need to know

Digital photography has a significant quota of science and technology in its DNA but, despite this, there's so much about it that's as subjective, unquantifiable and intangible as any other art form. All the clichés about one person's art being another person's trash hold completely true when it comes to photography.

This, of course, means that it's hard to definitively judge photography; what separates a great photo from one that's merely good? It often comes down to consistent technical proficiency in key areas. When it comes to making an objective judgment of an image, few factors matter more than focusing and its impact on sharpness and clarity. Images that display good focusing technique appear professional and well executed.

All too often, photographers assume that the sophisticated cameras and lenses that they use will take care of focusing for them and leave them to think only about the composition. However, more settings can often mean more problems so, it's vital that you understand how to get the best results, which is precisely what you'll discover across the next few pages.

KEEP FOCUSED

When using long focal lengths to get in close, keep supported using a tripod or keep your shutter speed higher than the focal length

© George Wheelhouse



Using your Nikon



Works best with
**AF-S DX
NIKKOR
55-200mm
f4-5.6**

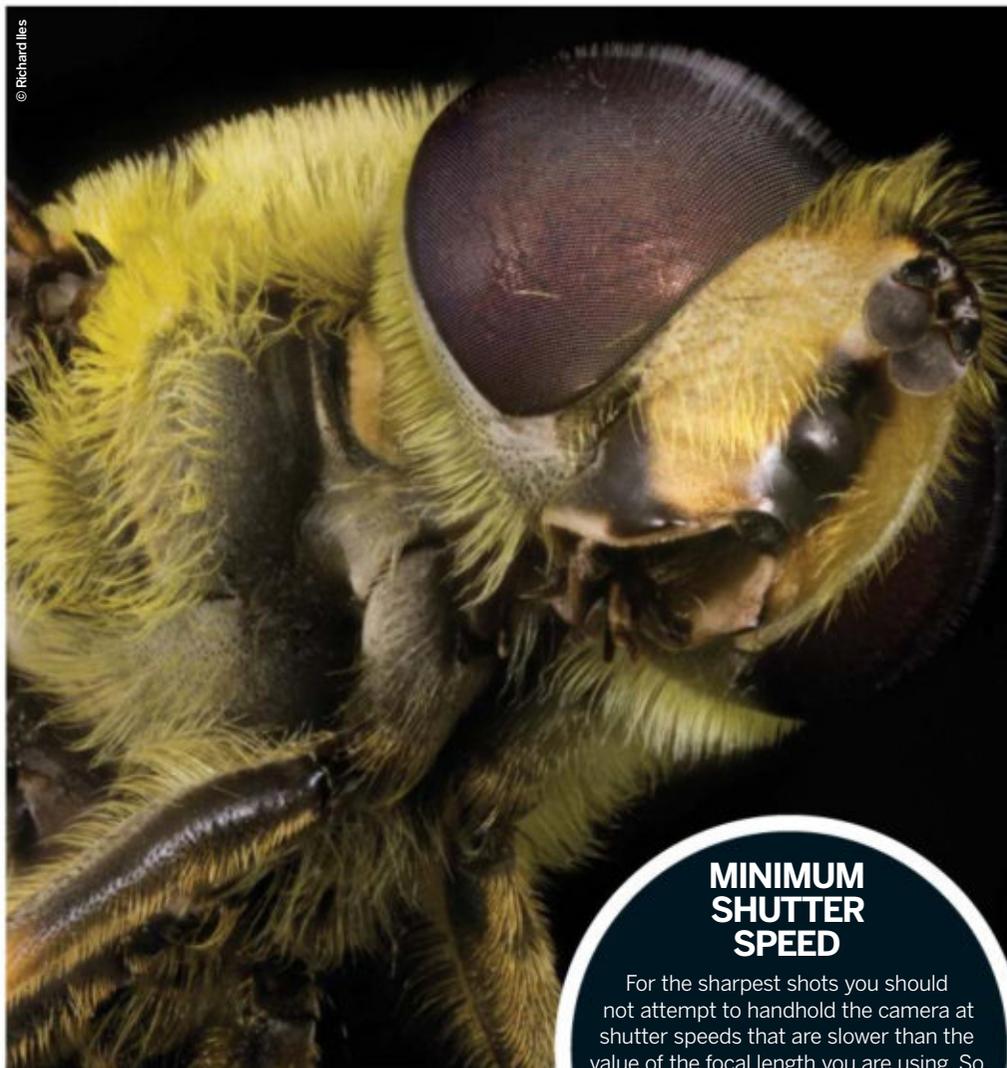
Taking control of autofocus

Different subjects place very different demands on the autofocus algorithms. This is why many cameras feature so many different autofocus functions, so that you can fine-tune how the autofocus performs. The process of refining your camera's AF performance begins with selecting a focusing mode. In AF-S or One Shot AF mode, the camera will focus one single time whenever the camera button assigned to autofocus is pressed. In AF-C or AI-Servo mode, the camera's AF system will continuously attempt to focus the lens on the subject for as long as the shutter or AF button is pressed. In AF-A or AI Focus AF mode, meanwhile, the camera automatically chooses between AF-S and AF-C on your behalf.

Autofocus is of particular significance for sports, action and wildlife photographers, who need to be able to capture sharply focused images of moving subjects – and their movement can't necessarily be easily predicted, as wildlife pro Alan Hewitt (www.alanhewittphotography.co.uk) explains. "Being able to accurately and consistently acquire and maintain focus on moving targets is probably at the top of wildlife photography challenges," he says. "There is a huge amount to consider. Some birds move at remarkably fast speeds and many with an erratic and unpredictable flight path too. The surrounding landscape can also present difficulties. Physical obstacles and other wildlife around you are a perfect distraction for your eye and your camera's autofocus system."

Hewitt finds that selecting AF-C/AI Servo mode makes a big difference to the success rate of the participants on his workshops and, though Hewitt prefers the reliability of single-point AF-Area mode, he says he often finds that using a dynamic AF-Area mode when he does encounter fast movement in his subject of choice makes a significant impact on focusing success.

Depth of field, which is determined by the way that aperture, focal length and focusing distance interact, must always be considered. "With ►►



© Richard Iles

► **SEE CLEARLY**
Whether you're shooting landscapes, wildlife or macro, perhaps the most important element to master is creating an attractive and appropriate level of sharpness. It takes practice, but it's worth it

►► **SEA EAGLE**
Alan Hewitt: "Photographing from a boat comes with additional complications too. Luckily my subject was one of the largest eagles in the world so it was big enough to track, while I was bobbing about too"

MINIMUM SHUTTER SPEED

For the sharpest shots you should not attempt to handhold the camera at shutter speeds that are slower than the value of the focal length you are using. So, a 50mm lens should not be handheld at shutter speeds slower than 1/50sec. However, you need to consider the crop factor of your sensor if you are not using a full-frame camera.

Master AF-Area modes

Discover how some of the most commonly encountered settings work and when to use them

AF-AREA	HOW IT WORKS	WHEN TO USE IT
Auto-Area AF/ Automatic AF Point Selection	In this mode, your camera is allowed to select the AF point of its own choosing, irrespective of whether you are using AF-S, AF-C or AF-A.	This is best suited to non-critical situations in which precise focus doesn't matter or to situations in which simply getting something is all that matters.
Single-point/Manual AF Point AF-Area	This mode enables you to choose a specific autofocus point, which the camera will use to lock focus, irrespective of whether you are using AF-S, AF-C or AF-A.	This is the best AF mode to choose whenever you are photographing a static subject, as it provides the complete control over where the camera will focus.
Dynamic/Expansion AF-Area	For use with AF-C mode. You choose a starting AF point but the camera's algorithms try to maintain focus using, for example, an additional 9, 21 or 51 points. 3D tracking, using all available points, can also be selected.	This is intended for moving or unpredictable subjects, making it an ideal option for sports, action and wildlife photographers.

Focus for wildlife

Alan Hewitt's top tricks for sharp animal images

- **Think about your background**
Autofocus is much more efficient at maintaining focus with high contrast. Position yourself so there is contrast between your subject and the background.
- **Think about the wind direction**
Your camera's AF will perform a lot more consistently with a slower subject. Position yourself with the wind on your back, as a subject that's flying towards you is likely to be flying slower than it would with the wind behind it.
- **Learn the fundamentals about your subject's habits**
For example, birds of prey often defecate before they take off, geese can become incredibly vocal before they take flight and most birds will try to take off quickly into the wind so they can gain lift.
- **Get your subject in focus in your viewfinder while it's in the distance**
You'll give your autofocus more time to acquire focus and it will be much easier to track and follow compared to taking a stab at something considerably closer.
- **Improve your panning technique**
There is no tripod head that offers more freedom than panning handheld. Support your lens with one hand while your other grips the camera. Keep your elbows tucked in and pan by twisting your waist.

CAPTURE CONTRAST

Make the most of the scene by contrasting background and foreground colours



PAN THE SHOT

In order to pan effectively in an image, hold your camera still and move from the waist

“No tripod offers the freedom of panning handheld”

© Alan Hewitt

Autofocus for action Camera settings for getting pin-sharp shots of movement



Focus with your thumb Many cameras feature a button on the rear that can be set to trigger the autofocus. This enables you to focus independently of the shutter button.

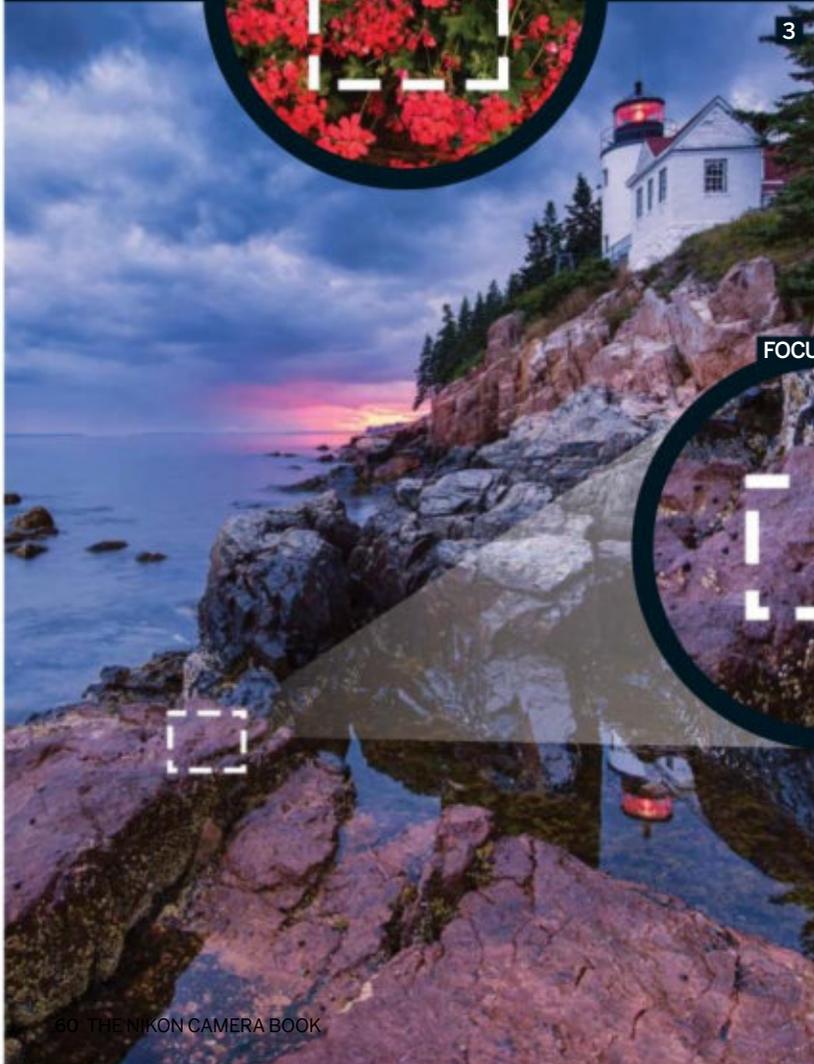


Adjust the autofocus Set your camera to its continuous focus mode and dynamic or expansion autofocus to enable your camera to keep track of moving subjects.



Prioritise focus Many cameras enable you to customise the way that they function, so that the shutter can only be triggered when the lens has been properly focused.

Using your Nikon





All images © Michael Blanchette

Depth of field for landscapes

Pro Michael Blanchette talks about how he assigns scenes into categories

1. NO DEPTH OF FIELD

Every once in a while, I run into a simple scene that doesn't require me to consider the depth of field. This is the case when photographing a subject like this rustic wall. The wall runs parallel to the camera plane and involves no near-far objects to complicate the focusing method. Here, I simply set my camera to its optimal aperture (f8 for my lens) and set the focus on the flower box to yield a sharp image.

2. SLIGHT DEPTH OF FIELD

A scene with a small depth of field is one where the nearest and farthest objects are sufficiently distant from the camera – such that they can all be rendered in focus without special consideration. This photo of sea stacks on the Isle of Lewis is a prime example of this. In this instance, I focused on a stack near the middle of the frame to bring all objects into focus, using an optimal aperture of f8.

3. MEDIUM DEPTH OF FIELD

Hyperfocal distance is a more accurate way to set focus in cases that involve both near and far objects. I often use a DoF calculator app to determine the hyperfocal distance. The calculator allows me to see precisely where to set focus in the frame. Here, the foreground rocks are just a few feet from my tripod location. I entered the focal length of my lens and distance to the closest rocks into the DoF calculator, and it returned a focus distance of just about five feet.

4. EXTREME DEPTH OF FIELD

These situations are difficult. The least desirable technique is to reduce the aperture to f22 or smaller. The second approach is to focus stack – start by focusing on the closest object and make small focus adjustments with each photo until the furthest object is in focus. The images are combined in post-processing. The last approach involves using a tilt-shift lens to get greater depth of field without reverting to small apertures. The poppy photo was taken with a tilt-shift lens at f11, with the closest poppies being about two inches from the lens.

►► wildlife photography my preference is to maintain creative control over the depth of field," continues Hewitt. "I always shoot in Aperture Priority and continually adjust the ISO sensitivity to give me the shutter speed I need. If you are photographing birds in flight in bright conditions, don't be afraid to use a narrow aperture to add more depth of field. On a Nikon DX camera, such as the D7000, using a focal length of 300mm at f5.6 on a subject ten metres away gives us a depth of field of about 24cm. If the ambient light is bright enough for us to maintain an adequate shutter speed at an aperture of f11 we can double the depth of field. This means more of our subject will be in focus so we have a little bit more of a margin if our autofocus has perhaps locked onto another part of the subject."

Make the most of manual

Many photographers find manual focus to be a fiddly and potentially inexact process, not least because the split-prisms of yesteryear made manual focusing less precise than the pentaprisms of today. Despite this, manual focus is the technique of choice for many photographers.

"I always shoot in manual focus mode," says landscape photographer Michael Blanchette (www.michaelblanchette.com). "While it's certainly possible to produce well-focused images using autofocus (as many photographers do), I personally prefer the consistency of manual focus. Since I take many photos at the edge of day, I find autofocus performs inconsistently under low-light conditions and, at times, the focus points can't reach the area of the frame where I want focus."

However, today's landscape photographers make use of Live View in order to make manual

USE LIVE VIEW

Using Live View enables photographers to zoom in on a specific area of the scene and check that it's perfectly focused.

focusing more straightforward. "Live View is an important addition to digital cameras that allows the photographer to use the bigger LCD as a viewfinder," says Blanchette. "I often use the Live View feature on my camera to zoom in and focus more accurately, especially in cases requiring greater depth of field."

The biggest concern for landscape photographers lies in getting the maximum depth of field

possible. "In landscape photography, the main challenge is to ensure that all elements in the photo are tack sharp, front to back," says Blanchette. "The generally accepted benchmark for landscape photos is that they must retain focus throughout the frame."

Autofocus systems don't attempt to achieve this extreme depth of field. "Autofocus has no means of understanding the vision for an image without our input. On its own, autofocus will make a guess at the focus range and produce a good-enough photo. This is fine for a family snapshot, but not so for a landscape photo that may be printed large and licensed."

Although many photographers assume that they need to use the smallest aperture possible, a popular alternative among landscape photographers is hyperfocal focusing. This enables you to focus on a specific, optimum distance, ►►

FRONT TO BACK SHARPNESS

The main aim for the vast majority of landscape photographers is to achieve front-to-back sharpness, even in scenes featuring near and far objects

"The biggest concern for landscape photographers is depth of field"

Try hyperfocal focusing

Get to know the hyperfocal focusing distance for your lens focal distance and aperture

35mm sensor	f8	f11	f16	f22
16mm	1.14 metres	0.81 metres	0.57 metres	0.40 metres
18mm	1.45 metres	1.02 metres	0.72 metres	0.51 metres
21mm	1.97 metres	1.39 metres	0.98 metres	0.70 metres
24mm	2.57 metres	1.82 metres	1.29 metres	0.91 metres
28mm	3.50 metres	2.47 metres	1.75 metres	1.24 metres
35mm	5.47 metres	3.87 metres	2.73 metres	1.93 metres

► which is calculated according to the sensor size, aperture and focal length being used, with the intention of achieving the maximum amount of front to back sharpness. “Some photographers overuse [small apertures] just to make sure all the elements in the frame are brought into focus”, says Blanchette. “But the penalty for using f22 can be a significant loss of sharpness along the edges of the frame, effectively reducing overall image quality. Use the optimum aperture setting for your lens, often f8, whenever possible for best results.”

Pre-focus to be prepared

An alternative focusing technique is pre-focussing, which is an approach employed by street photographers and photojournalists – and some sports, action and wildlife photographers also – to cut out the inevitable delay caused by the focusing process when photographing moments that are so fleeting that any such delay will very likely result in the shot being missed.

There are two different types of pre-focussing. The first involves identifying an area of the scene in front of you in which something significant is likely to occur, pre-focussing the lens (using either autofocus or manual focus) on that point and then waiting for the decisive moment. The second is more accurately referred to as zone focusing, in which you pre-focus your lens in order to establish a zone of acceptable depth of field.

For example, you might focus your lens, using autofocus or manual focus, on an object that’s ten metres away from you, knowing that any future subject will probably be correctly focused provided it’s not outside the zone of depth of field determined by the aperture and focal length you’re using. For instance, if you’re using f2.8 and a 105mm lens, the zone in which your pre-focused lens can be relied upon to produce an acceptably sharp result will be much shallower than if you’re using an aperture of f11 in combination with a 35mm lens.

When it works, pre-focussing is hugely beneficial, but making it work requires excellent anticipation, good spatial awareness and plenty of practice on the part of the photographer. Wedding photographers who need to capture split-second moments – immediately after the ceremony, for example – might employ zone focusing in order to negate the need to focus for each and every frame, but it would be unwise to attempt this at such an important



LEARN TO PRE-FOCUS
Switching your camera into manual focus mode enables you to lock the focus, provided you do not nudge the focusing ring on the lens barrel

PRE-FOCUS FOR ACTION
Pre-focussing enables you to cut out the delay caused by the focusing process when you are attempting to photograph fast-moving action and fleeting moments

DON'T RECOMPOSE
By recomposing after focusing you lose sharpness, particularly when you're using wide apertures. Use an AF point close to a subject's eye

USE MIRROR LOCK-UP

The movement of the mirror can cause significant vibrations inside the camera, which can undo the careful focusing they've done, so many landscape photographers lock the mirror up before taking their images.

event without supreme confidence that you will be able to get it right.

Macro focusing

One of the most difficult focusing scenarios for photographers is macro imaging.

At close focusing distances and high magnifications, depth of field is limited to the extent that even at apertures such as f22, little of the subject is in completely sharp focus, making it necessary to either use a slower shutter speed and a tripod or a macro flash setup to enable a small aperture and faster shutter speed to be used.

Some photographers attempt to resolve the focusing and depth of field challenges associated by employing a technique known as focus stacking, as Javier Torrent (www.500px.com/Javier_Torrent) explains. “Focus stacking consists of taking pictures at different planes of focus and then stitching them together. Think of it as a panorama shot, but instead of moving sideways I move the camera in-ways... I don't mind if the DoF is ►►

Focus for portraits

Getting your model's eyes sharp is vital so follow these top tips

Many portraits are captured using an aperture of f4 or wider. This creates shallow depth of field, which looks very attractive, but means that critical focus is vital. The subject's eye nearest the lens should be the sharpest point. As this point will hardly ever be at the centre of the frame, some choose to focus using their camera's central AF point and then recompose, but be aware that changes in the focal plane mean that after the composition has been adjusted slightly, the eye on which you focused will no longer be critically sharp. Aim to compose the shot correctly and then manually select an AF point closest to the eye.

“Pre-focussing requires excellent anticipation, spatial awareness, and practice on the photographer's part”

WHAT'S BACK-FOCUSING?

Autofocus, even on expensive cameras and lenses, is not infallible. Sometimes the AF will consistently lock onto a point slightly in front of (front focusing) or slightly behind (back focusing) the desired subject. Many cameras enable you to run tests with a focusing chart and then store focusing compensation values in the camera's menu.

Shooting stance

Stand steady to avoid unwanted movement

1. DRAW ELBOWS IN

Draw your elbows into your body in order to create as much support for the camera as possible

2. CRADLE THE LENS

Ensure that your left hand is being used to support the lens. Depending on the focal length of the lens, you should also support the underside of the camera

3. GRIP THE CAMERA

Grip the camera as solidly as possible with your right hand, with your index finger resting over the shutter button and your thumb available to focus using the AF-ON button

4. KEEP YOUR BALANCE

Adopt a stable position whenever you are standing. Have your feet apart in order to ensure that you won't lose your balance



**USE
A REMOTE
SHUTTER
RELEASE**

A remote shutter release device, preferably a wireless one, enables photographers to avoid disturbing the camera, increasing the chances of obtaining a sharp shot.



FOCUS-STACKING SOLUTION
Many macro photographers resort to focus stacking as a means of solving the very limited depth of field and increased diffraction at high magnifications

► narrow because of high magnification and using wide apertures, as I can usually take as many pictures as we need.”

Though not easy, focus stacking can be done in the field, “It’s quite possible to perform relatively small focus stacks handheld, moving the camera a tiny distance between shots,” says Richard Iles (www.flickr.com/photos/reallysmall).

Torrent plans his field-based focus stacking carefully. “To be able to focus stack insects you need to find them when they are cold and their activity is at its lowest, normally in the first hours of the morning or before sunset. When the Sun comes out they start to move, which makes stacking impossible. Also wind is a very big problem, no matter how stable your set up is. I always check the wind forecast before going into the field. The set up has to be absolutely rock solid; I use a wooden tripod, which helps to keep vibrations down, a good gear head, a linear stage and normally just take a couple of lenses.”

Unsurprisingly, focus stacking is a relatively complex technique that can require a fairly significant time investment. “Running and post-processing the stack is a lengthy process, so it’s advisable to be completely satisfied with the composition before continuing,” says Iles. “Any parts of the subject to be included in the final stack should be visible in each image that contributes to it,” he says. “It’s a good idea to move the camera through the entire range of the intended stack, as due to the effects of perspective, parts of the subject visible at one end may have moved out of the frame by the time the other end is reached! The camera can be moved and triggered manually for each focus step. However, this needs extreme consistency and patience, as many stacks require hundreds of images to complete. If any of the steps made are inadvertently too large, a focus slice will be missed – resulting in a blurred band in the final image, which is often only noticed towards the end of the process. There is no easy way to fix this other than to start the stack again.”

Many macro photographers take focus stacking so seriously that they invest in more specialist equipment. “To move the camera with precision, we need special industrial rails called linear stages with micrometer actuators,” explains Torrent.

Although Zerene Stacker and Helicon Focus are very popular options for processing component frames into the final stacked image, Photoshop also has a function for this. Simply go to File>Scripts>Load Files into Stack and then Edit>Auto-Blend Layers.

▲ DEPTH OF FIELD LIMITS

At high magnifications, focusing becomes critical because of the limited depth of field on offer

► FOCUS MATTERS

There’s nothing worse than finding that a great image has been let down by poor focusing technique, so invest time in learning how to get it spot on. “An uncluttered background helps with tracking and maintaining focus,” says Alan Hewitt



© Emiliano Pane



© Alan Hewitt

Using your Nikon



Works best with
**Nikon
D5**

CENTRE-WEIGHTED METERING

All of the action is in the centre of the image, so with the camera set to centre-weighted metering, the edges of the frame play no part in the calculation

© David Clapp

Metering with Nikon

Mastering metering can open the door to accurate images and creative control of your Nikon. This section uncovers the principle, technology and application of metering

“Everything we see contains varying levels of light intensity... A good photograph renders the scene balanced, as it appears to the eye”

With Nikon camera technology breaking boundaries as the digital revolution advances, photography is looking like a complicated ship to steer. Camera controls are becoming so sophisticated that as the manuals get thicker, the technological soup seems harder and harder to wade through. Camera metering, its modes, functions and subjectivity can be just as confusing, so just how do you learn to read the light?

Everything we see contains varying levels of light intensity. From bright light streaming through a window to the dark shadow tones in a room corner, a good photograph renders the scene balanced, as it appears to the eye. All modern cameras, from an everyday mobile phone to a professional Nikon DSLR, have metering capabilities to assess these levels of light correctly for the ideal shot.

Prior to digital technology, the only way to measure light was by using a separate handheld light meter. Before camera technology advanced and in-camera metering became more commercially viable in the Sixties, there was simply no other option. Imagine it – no histograms, not even a viewfinder needle to assist; just a handheld meter and some good understanding. Despite feeling somewhat underpowered, many photographers still use handheld meters as a preference. Portrait photographers can't work without them and these feelings are still alive in the world of landscape photography, too.

Remember that film is far from dead. As large-format landscape photography is making a popular resurgence, many photographers enjoy the slower pace and the accuracy of handheld metering. It's the only form of measurement available to them, as the camera is electronic-free.

The first concept to fully understand is the two distinctly different ways that light can be measured using handheld meters and cameras alike. Reflected metering is where, like all 'through the lens' in-camera metering systems, the camera takes measurements based upon the light reflected from the subject surface towards the camera. The second method, incidental metering, is the measurement of light falling onto the subject from a light source, using a handheld light meter. Reflected light from the subject's surface is not measured in the reading.

Unfortunately, reflected light can cause problems. Different surfaces and textures reflect light in different intensities, varying from subject to subject. In-camera metering combats this by basing calculations on light reflected from a tone in the middle of the luminance range, a 'midtone' or 'middle grey'. ▶▶

USING SPOT METERING

Spot metering from the grey lamppost stopped the camera from metering the confusing background incorrectly



© David Clapp



© David Clapp

EXPOSURE COMPENSATION

Spot metering this eider duck's plumage and exposure compensating by overexposing by +1.5 stop keeps those whites bright



© David Clapp

Expert advice

Learn how to choose the correct Metering mode for the scene and set the appropriate focus points

DIFFERENT METERING MODES: Most cameras are equipped with a number of different in-camera metering modes, but understanding how they work and when to use them will only add greater creativity to your photographic approach. Let's examine the five main styles of metering systems:

CENTRE-WEIGHTED METERING: When pointed at a scene, the camera biases the light reading towards a central zone and pays less attention to light values at the extreme outer edges.

PARTIAL METERING: Similar to centre-weighted metering, but the light-gathering area is rapidly reduced to a smaller zone (10-15%) in the centre of the frame.

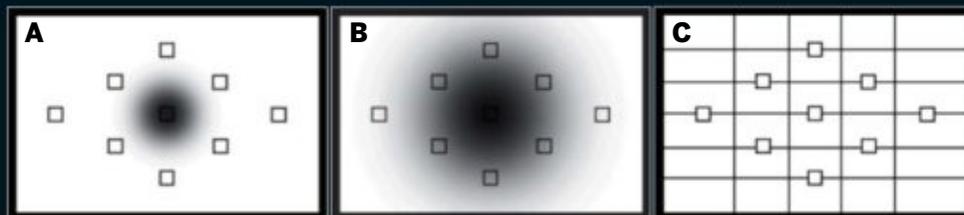
SPOT METERING/MULTI-SPOT METERING: The metering area is concentrated in a small spot (3%), ignoring all light levels outside this greatly reduced zone. Cameras that have multi-spot metering let the photographer use this small zone to take spot readings from key points around the composition. The camera then averages these readings.

AVERAGE METERING: The camera does not add any specific weight to any zone when measuring the light across the frame. Instead, it averages the light reading from edge to edge without bias to any particular tonal area.

MATRIX/EVALUATIVE METERING: By far the most technical metering system and one that photographers

love. The screen is divided into small segments and individual readings are taken. The camera then evaluates the light in each segment and evaluates the correct exposure.

AF POINTS: It is also important to remember that as you change the AF point, so the camera can bias the exposure. This is particularly useful when autofocus is tracking an object, or when a static subject is not positioned in the middle of the frame. Some cameras also give the option to link or unlink this facility.



Spot metering (A), centre-weighted metering (B) and matrix/evaluative metering (C) as they appear in the viewfinder. The difference between these three popular metering modes is based on biasing the results. Although centre-weighted and spot metering are essentially reacting in the same way, the spot metering zone is much smaller. Evaluative approaches metering in an entirely different way, taking readings from each of the segments



© David Clapp

This scene is ideal for evaluative metering. It contains a wide range of tonal values from dark to light. These zones are not uniform across the frame, so the camera segments the readings to achieve an accurate exposure



© David Clapp

Nikon metering options

How your Nikon camera controls metering

Your Nikon camera can offer you a choice of three metering modes. Each one is useful for certain kinds of shot under certain kinds of lighting conditions. The metering sensor inside your Nikon camera measures and responds to light to help you balance your shots or compose creatively. Set your metering options to one of the following depending on the kind of shot you're taking.

Matrix metering (also known as evaluative metering) is used to balance your shots. It meters the entire photograph and tries to allow for a balance of light and dark across it. This is perfect for well-lit scenarios such as daytime landscapes, but less suitable if you have any directional lighting involved such as a sunbeam or spotlight, or if you're trying to capture dramatic contrast.

Centre-weighted metering is designed to add focus to the centre of your photograph. The balance of light and dark will be concentrated here, while surrounding areas may be shadier or lighter depending on the lighting conditions. Centre-weighted metering is great for face-on portraits as you can balance the lighting on the subject's face, making it into a focal point. It's also great for photographs of people on stage. Compose your shot with the subject in the centre and the stage lighting will be fairly balanced, showing up their features clearly while the rest of the shot will be darker, adding drama. It's also good for creative shots such as silhouettes against a bright backdrop.

Spot metering is best for portraits but can also be used for more creative shots. Areas of the photograph area are defined as spots to be metered. It's very accurate so it's the best for dramatic contrast.

▶ EVALUATIVE METERING

With an even spread of blacks and whites, the camera makes easy work of this situation using evaluative metering

▶▶ COLOUR CONUNDRUM

A problem photographers can face is colour. The camera's metering system, unlike our eyes, doesn't see the world in colour; it measures light in luminance. Certainly colours appear extremely vivid to the human eye. The camera sees these simply as tonal shades and interprets the result without the intensity we attribute. As we approach our subject, it can often become difficult to predict exactly how the metering will be affected at first. In the days of film photography this often presented huge problems, but with digital photography it's easier to learn just how the camera reacts to tones and shades by exploring the information in the histogram. In this respect, it is worth reading about the Zone System. This helps you identify where midtones, shadows and highlights sit relative to each other by separating the tonal values into distinct zones. Approaching the subject with the understanding of where these shades should be placed helps when setting exposure values. It's surprising how the untrained eye can misconstrue a bold colour like the reds on this mushroom as very bright. The camera sees the red as a midtone.



© David Clapp



© David Clapp



© David Clapp



▲ UNDEREXPOSURE ISSUES
In-camera metering will try to push reflected whites of this cotton grass towards middle grey, underexposing the shot and making it murky

◀ KEEP THE WHITES BRIGHT
The histogram bunches to the right as it recognises the amount of light tones in shot



© David Clapp

“Metering systems are very sophisticated, but still get confused with tricky conditions”

▶▶ Incidental metering doesn't suffer from this miscalculation, as it is based on a measurement of light falling onto the subject. The subject can be any tone, reflective or not, and the light reading will remain consistent. Portrait or product photographers, in particular, base their metering calculations on handheld incidental metering, rather than reflected in-camera metering to get a more realistic reading. Despite this however, if the image has a wide range of reflected light and tones, in-camera metering still works well. Metering systems are very sophisticated, but still get confused with tricky conditions.

The biggest issues occur when a single luminescence fills the scene, like a blanket of snow. As the camera tries to evenly measure, it is bombarded with reflected light. It tries to position

the white in the middle of the tonal range, as it is convinced this is where the correct exposure should be. This results in a shot that is significantly underexposed. The same thing occurs when shooting excessively dark subjects; the camera will lift the blacks towards the midtone leaving you with a shot that is overexposed. With modes like Aperture Priority (Av) and Shutter Priority (Tv), in-camera metering can be difficult to get right. As the camera bases the shutter speed or the aperture on the in-camera meter reading, the image can be prone to over- or underexposure. This is where the Exposure Compensation mode comes into its own.

Let's now consider the previously discussed snow scene once again. With so much reflected light, the camera will consistently underexpose unless the

camera is set to compensate. By setting the camera to overexpose by around one and a half stops, the whites will remain bright and clean. The exact same approach in the opposite direction works with darker subjects, too.

For film photographers, both amateurs and professionals, understanding metering and gauging correct exposure is absolutely vital. Getting to understand photography in this intimate way is a true art form.

Digital photographers must also pay heed to these rules, but there is a huge safety net to fall back on – the histogram. With instant exposure feedback at the fingertips, a quick test shot can sort out any problems and let the photographer make any necessary adjustments accordingly. Get it right in-camera to avoid time editing.





© Markus Reugels

► Broadly speaking, there are two general reasons for using a speedlight. Firstly, there are times when the light that's available to you isn't suitable for taking a well-exposed photo – but a single speedlight can be all that's required to get you out of a tight corner.

A good example of this is a scene with backlighting, which often presents significant exposure problems. Avoiding overexposure of the background will typically cause the subject themselves to be underexposed – unless, of course, you happen to have a speedlight handy. A speedlight can be used to add a subtle burst of light that's just enough to allow you to achieve a good exposure for the background and the subject simultaneously.

There are also times when there simply isn't enough light at all. Photographers who specialise in capturing weddings and parties know all too well that sometimes there's a straight choice between getting a shot with a speedlight and not getting a shot at all.

The other reason to use a speedlight is the massive creative potential that they offer. Just one speedlight can be all that's required to create images that look as if they were taken with much more elaborate and complicated kit.

Many people think of portraiture first when speedlights are mentioned, but there are many other intriguing ways to put them to good use. For example, speedlights are brilliant when it comes to freezing action. Have you ever looked admiringly at images of water drops or drips of paint caught in mid-air? The chances are that those shots were taken using one or

▲ SPLIT-SECOND CAPTURE

Markus Reugels used two affordable, nonproprietary speedlights off-camera for this water-drop collision shot
Flash info: One Vivitar 285 at 1/32 power behind frosted glass providing backlighting, with another Vivitar 285 at 1/32 power on left side, also behind frosted glass. A reflector was added on the right side

two speedlights with the power turned right down to provide a brief flash duration to freeze the motion. The only extra bit of kit that's required for this type of photography is an infrared, or sound-sensitive, trigger to ensure that your camera and speedlights are fired in perfect sync with the decisive moment.

A very similar setup can be used to capture images of birds in flight. This is all thanks to the ability to dial the power output of a speedlight unit right down, thus facilitating incredibly fast flash durations of 1/41600sec – far quicker than even the fastest of shutter speeds.

Thankfully, the sophisticated TTL (through the lens) metering which Nikon pioneered and many cameras have followed means that your camera and speedlight will communicate with each other to produce a suitable exposure. And thanks to modern wireless flash systems, such as Nikon's Creative Lighting System, this still applies even if you choose to position your speedlight off-camera.

This often works well when using your speedlight to get you out of a tight spot. However, if you want more creative results setting your speedlight to full manual mode (M) is often the best bet. ►►

Manual control

If you're looking to use your speedlight creatively then it's best to explore the possibilities offered by switching it into manual mode and placing it off-camera



▲ SWITCH TO MANUAL

Putting your speedlight into manual mode is usually just a case of pressing a button on the back of the unit. You can then select the power output for the flash – in this example it's set to 1/4 power



▲ REMOTE MODE

There's probably not a lot of point in using manual mode if you are going to photograph using your speedlight on-camera. Modern speedlights allow you to use them as remote off-camera units



▲ OFF-CAMERA FLASH CONTROL

If you're going to use your speedlight remotely in manual mode, it makes perfect sense to be able to control and adjust it from the comfort of your camera



Works best with
**Nikon
1 J5**

A guide to filters for landscapes

Landscape pro Lee Pengelly demonstrates how filters enable you to get the image right in-camera, banishing those washed-out skies and weak colours

As the landscape is one of the most accessible subjects, you would think this would make it easy to capture. However, unlike studio photographers who can control their own lighting, for landscape photographers it's a slightly different story. We work with natural light and in the UK this can be unpredictable at the best of times. We have to measure and cope with a changing light in all its various forms – side lighting, back lighting, sunsets, sunrises, into the light, harsh light, diffused light... the list goes on and the various techniques for capturing each first time around aren't at all simple. Add to this other elements such as cloud cover,

the seasons, the Sun's position and you start to get an idea of what we're faced with. We have to be aware of how the camera sees things and help it along to capture what we see.

Unfortunately our cameras don't work as well as our eyes. Look at any landscape and in microseconds our eyes will adjust to the light, balancing the scene. Try to capture the scene with one frame and getting this balance right in-camera is nigh on impossible. Nine times out of ten we end up with washed-out skies and poor contrast.

All is not lost though, as we can control this light with filters, getting the image in-camera to match what we see.

AFTER

TRANSFORM A LANDSCAPE

Use long exposures alongside a neutral density filter to capture atmospheric landscape images like this one



Control the light

Learn to capture stunning landscapes in-camera using three essential photographic filters

Look through any holiday brochure and a good deal of images will have been taken with the addition of a filter. Some purists believe that filters are a way of cheating, adding something to an image that wasn't there. In landscape photography this is especially true and it's a subject that requires honesty to record only what you see. There are filters that add colour and effects to an image, but nowadays filtration is a more sedate affair with the majority of photographers opting to simply control the light.

We now have a massive amount of software at our fingertips to alter an image, add colour, morph multiple exposures together and even filter, but the old adage of getting it right in-camera still rings true. I still approach photography the old-fashioned way.

By this I mean using what I have available – the light, the exposure settings and the filtration to record what I see as close as I can and as faithfully as I can. A key factor to remember with filtration is, if you can see that a filter has been used, you've failed. This is where light-controlling filters come in.

There are three main types of filter in this category: the polariser, the graduated neutral density filter and the standard neutral density filter. These filter types don't add colour but instead control the light entering the camera. They affect the light, hold it back and help the camera see as we see.

Look through any photographic supplier catalogue and you are met with an array of different sizes, strengths and shapes of filter. There are also

two main types: screw-on filters and system filters that fit into a holder. The screw-on types have various filter thread sizes and these are screwed on directly to the lens and rotated, in the case of polarisers and grads. The system type of filters are usually square or oblong in shape and fit into a specialised holder that attaches to a threaded ring placed on your lens. These can be moved up and down, tilted sideways and stacked. You have to make your own decision when picking a system type, though the more expensive ones tend to be more accessible.

In this feature I have used filters from www.leefilters.com but you can also browse a filter range at www.nikon.com.

▶▶ PORTLAND BILL LIGHTHOUSE, DORSET

A polarising filter transformed this scene, making the clouds stand out against the sky and removing glare from the water surface

Essential landscape filters

Polariser



Price: **From £160 (approx. \$200 US)**

Web: www.leefilters.com

The polariser comes in either linear type for manual focus, or circular type for autofocus. They are available as screw-on types, as system types, or square slot-in types. Although each affect the image in exactly the same way, the system holder screw-on types are best, as the filter will always be in front of other filters and easier to operate. The polariser works best when the Sun is at 90 degrees to your shooting position.

Neutral density grad

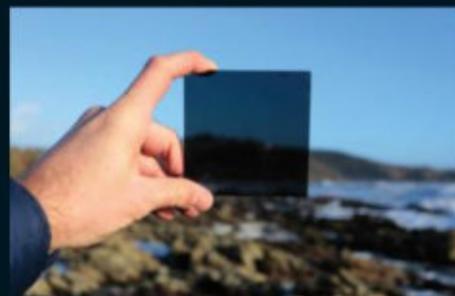


Price: **From £176 (set of 3, approx. \$289 US)**

Web: www.leefilters.com

The simple ND (neutral density) graduated filter is a filter that enables you to balance exposures between a bright sky and darker landscape. They come in varying strengths measured in density, for instance 0.3=1 stop, 0.6=2 stops and 0.9=3 stops. The filters are grey and graduate to clear resin, though they don't colour the image, only hold back the light. They come in hard or soft graduation and as screw-on or slot-in systems.

Neutral density



Price: **£79 (resin type, approx \$130 US)**

Web: www.leefilters.com

Unlike the neutral density graduated filter, the ND filter is grey overall. Again, as it's neutral it doesn't colour the image, only holds back light. Various strengths are available and they come in either resin or a glass version. The glass pro filter is more balanced and a better choice for digital sensors, although major colour shifts only result in extreme exposures. This filter can extend exposure to create movement.

AFTER

Filter uses

With many software filters around, physical filters still have a place

 **Balance exposure**
A graduated grey filter balances exposure between bright skies and dark foregrounds, bridging the gap in exposure between the two.

 **Saturate colours**
A polarising filter will cut down the glare from reflective surfaces, making colours look more saturated.

 **Extend exposure**
You can add a neutral density filter to prevent light entering the camera and in turn increase the exposure time to enhance movement.

 **Remove reflections**
Use a polariser to remove annoying reflections from shiny surfaces. Shoot through glass as well as through the surface of the water with this simple filter.

 **Creativity**
Filters enable your creative juices to flow, so try to pre-visualise how a filter will affect a scene, add movement or add impact to dramatic conditions.

BEFORE

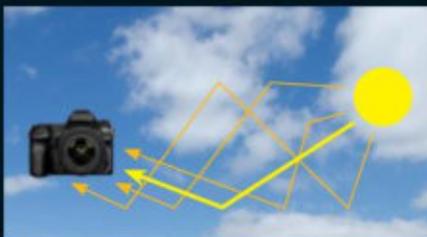
How does a polariser work?

Explore the science behind the simple polarising filter

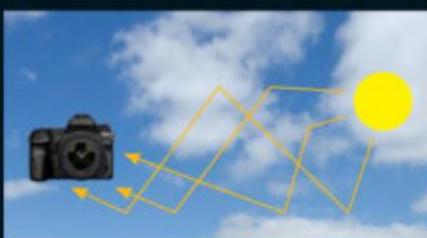
Light from the Sun travels in a straight line as a wave that is oscillating up and down and side to side. When light is reflected off a subject, it's the reflected wavelength of the light that determines the colour of the subject – the subject absorbs other colours. A blue subject, for example, reflects only blue light and absorbs other colours such as reds, oranges and greens.

If the light that's being reflected travels in only one direction, it will cause glare and reduce the colour of the reflected surface. A polarising filter removes this polarised light by filtering the sunlight that's reflecting towards the camera lens from specific angles, enabling you to restore colour intensity in your captures.

The polarising filter has a layer of Polaroid between two plates of glass to do this. In a circular polarising filter, the front plate is rotated. This directly affects the angle of polarisation, as well as the amount of polarised light entering the filter, enabling control over the degree of polarised light that is to be removed.



Without a polarising filter



With a polarising filter

A polarising filter works best when you're shooting perpendicular (90 degrees) to the Sun

Enhance colour using a polariser

Discover how a polarising filter can reduce glare, boost colour saturation and refine reflections

Despite the myriad of different filters and effects available in software, there is still nothing as yet to match what the simple polarising filter can do. This is because the filter physically affects the light entering the camera. Yes, there are software effects that can replicate the filter's effects and there are the Saturation and Vibrance sliders, but a polariser is the one filter that every photographer should have.

There are three types of polariser available. The first is simply a sheet of polarising gel, which can be cut by hand and held in front of the lens or mounted in a handmade gel holder. You can also buy these from manufacturers, however they aren't very durable and can cause flare problems. There is also the most common type, consisting of a polarising material between two pieces of optical glass. This is



“A polariser is the one filter that every photographer should have to hand”

usually circular and either screw onto the front of your lens or to an adapted holder. The effect can be seen by rotating the filter while viewing the image through the viewfinder or Live View. You can also hold it up to your eye and rotate first, then carefully place the filter back onto the lens. Some polarisers are even marked up to help with positioning.

One important thing to bear in mind when using polarisers is that they prevent around 1.5 to 2 stops of light entering the lens, so if using manual exposure you will have to compensate for this. The polariser has a maximum effect when the Sun's position is at 90 degrees to your shooting position. Be careful not to over-polarise though, as this

happens when using lenses wider than 28mm, causing a darker mass in the sky of the image. When stacked with other filters, you will sometimes notice vignetting in the corners of the image. Look for a slim-type circular polariser to help prevent this.

Polarisers can be used as ND filters. Unpolarised, they will hold back the light but beware that some can cause slight colour casts, which can be fixed at the processing stage, or by increasing colour temperature via White Balance settings.

WEMBURY BAY, DEVON

A polariser has been used on this shot of a rough sea. The waves have been softened a great deal, making them much easier on the eye



REDUCE REFLECTIONS WITH POLARISERS

Polarisers reduce or even remove reflections. They block the unwanted rays of light from non-metallic surfaces. As you rotate the filter, reflections on water and wet rocks will disappear, so much so that it makes the water transparent

AFTER



Boosting saturation

How to increase the saturation in a shot by using a polariser

Open a travel brochure and you will see deep-blue skies, flowers and foliage jumping off the pages. This is usually the result of the photographer using a polariser. One of the main uses for polarisers is to boost colour saturation. This isn't the same as the software equivalent of moving a slider; it just increases colours that are already there. A polariser works by removing glare and reflections from surfaces, in turn making the subject appear more colourful. In essence the contrast is improved and not weakened by the harsher light. So, where would you use this to maximise a scene? Take a woodland scene, for example. Even on a dull overcast day a polariser can work wonders by boosting the colours in foliage, which is great for autumnal scenes. White puffy clouds will stand out against a deep-blue sky, as the polariser is rotated and for close-up nature work flowers can benefit from the boost in contrast and colour. One thing to be aware of is over-saturating with the filter, which is noticeable in skies where the Sun is off to one side of the frame and the other half of the image is darker than the brighter side. An angled soft graduated filter can help to balance things up in this situation.

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BEFORE





Use the Big Stopper filter

Take long exposures to the extreme using a 10x Big Stopper filter for atmospheric effects

In recent years a number of companies have produced 10x ND filters and the Big Stopper is Lee Filters' version. This glass filter resembles a piece of welding glass, totally opaque. It takes exposure times to the extreme, turning 1sec exposures into mind-boggling 30-minute ones. The filter was designed to use during the day, creating the same motion effects as you would get at dawn and dusk. Using the filter takes some practise, as a meter reading has to be taken, focusing done, settings put into the camera, then the filter is placed and exposure taken. This can produce a blue colour cast, but it's easily corrected either at the process stage or by increasing the White Balance kelvin setting in-camera to around 8500K. Light leaking can also be a big problem, so make sure your viewfinder is covered during exposures.

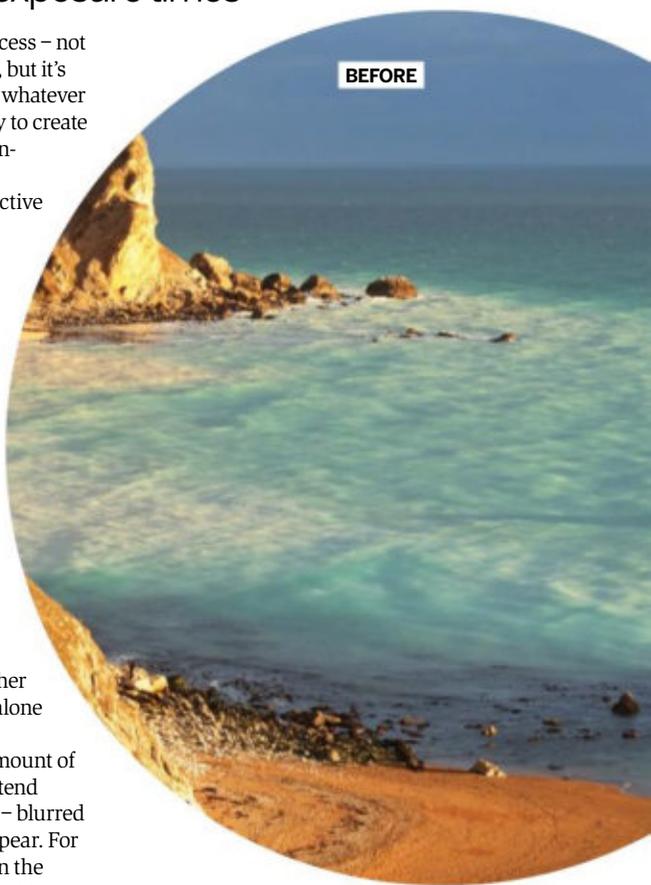
Shoot long exposure with ND filters

Capture movement and atmospheric scenes using ND filters and longer exposure times

Let's not forget that photography is a creative process – not does it produce a true representation of a subject, but it's also used to capture what we have in our minds, whatever the subject. With current software it's all too easy to create montages and all kinds of creative imagery, but in-camera it requires a practical knowledge and forethought. The landscape in particular is restrictive in terms of what you can add to it, unlike studio photography where lighting and effects can be created. With the landscape you get what you're given, but with filtration you can bend the visual rules.

One filter that can do this is the ND (neutral density) filter – a piece of grey resin or glass that holds back light from entering the lens. Although grey in colour it's similar to the ND grad, as it doesn't colour the light, but only reduces it. These filters come in either screw-on fit or as a square system type filter. They are also measured in density and available in varying strengths from 0.3 to 1 stop, right up to 10 stops. Most are made from resin, however professional glass ND filters are also available; these are less prone to colour casts during long exposures. The filters are typically stacked together with either grads or a polariser, but can be used alone depending on the subject.

Primarily the ND filter is used to reduce the amount of light entering the lens. This is usually done to extend exposure times, creating movement in an image – blurred waterfalls, traffic trails and making people disappear. For example, let's say you are shooting a scene within the landscape at a wide aperture of f5.6. You don't want to deviate from the aperture, but can't get the shutter speed slow enough to create blur – the ND filter is the cure. It can also be used to improve contrast in a scene taken on a bright day where overhead light is harsh.



▶▶ **MAN O WAR BAY, DORSET**
Although the scene's composition was nice, the rippled water out in the bay was a bit messy. By adding a 3-stop 0.9 ND filter I was able to achieve a longer exposure



Guide to smooth water

How to extend exposures with an ND filter for smooth water motion shots

One of the most common subjects to use an ND filter on is water, as where there is water there's scope to create something a little different. Of course, photography is subjective and nowhere is this more apparent than in scenes with blurred water, with some preferring to freeze the motion.

Used in combination with a polariser the two filters will extend exposure times into seconds while removing glare and boosting contrast and colour saturation at the same time. The general rule for water is using

1sec to 4sec to create a blur of water, while still giving it definition. From 4sec up to 30sec the water tends to lose any definition, taking on a cotton wool appearance. Into the minutes and water will take on a misty, atmospheric quality. The camera will meter through the filter up to 30sec, but beyond that you will have to double up exposure times for each stop over and use Bulb mode.

This technique usually requires fairly small apertures. Plus, when combined with the filters, exposure times are long, so a tripod is a must.

“With the landscape you get what you’re given, but with filtration you can bend the visual rules”



AFTER

Guide to using grad filters

Practical guide to setting up and using a graduated ND filter

Take a meter reading

To ensure you use the right exposure settings and filter strength for the scene, take a meter reading of just the midtone areas and then another of the sky. Work out the stop difference based on the results of each.

Select a grad strength

You can now determine which filter strength is best for the landscape. A two-stop difference, for example, would only require a 0.6ND grad. Too dark and the balance would be wrong, resulting in an unnaturally dark sky.

Position the filter

Select a hard or soft grad line depending on the horizon in the scene. Once you've positioned your camera on a tripod, you can switch to Live View mode and position the grad line accordingly.

Check the histogram

Once the filter is in place you'll be able to better expose the midtones and reduce the glare from the highlights. Always check your histogram on the LCD while shooting to tweak the various exposure settings if necessary.



Preserve skies with graduated filters

Discover how you can easily protect precious detail in the sky using a graduated ND filter

How many times have you taken a quick snapshot of a beautiful landscape scene, only to find you are left with a bleached-out scene with no detail or colour? Unlike our eyes, which can instantly adjust to around 24 stops in light difference, the camera cannot record anywhere near this amount of variation in one frame. This is where the simple graduated grey filter comes into play.

It bridges the gap in exposure difference between a bright and dark subject, balancing exposure. Graduated filters come in two types: circular screw-on filters and resin oblong filters that slide into a filter holder attached to the lens. Although screw-on grads are in principle the same as the system type, they are more restrictive – to move the graduation line means moving the camera, as opposed to just sliding a system filter up and down.

Grads are available in varying strengths, most commonly 0.3 to 1 stop, 0.6 to 2 stops and 0.9 to 3

stops, measured in density, the darker grey part of the filter holds back the corresponding amount of light. Although grey in colour they are neutral so don't affect the colour of the image, however be careful with cheaper versions, as these aren't neutral and produce strange magenta colour casts. You also have a choice of varying gradation types: hard graduated and soft graduated. Which to use depends entirely on the subject you are shooting. A hard-edged grad would be ideally suited for coastal scenes, with a well-defined horizon, whereas a horizon broken by trees or buildings would require a less harshly graduated line, so a soft grad would be a better choice here.

The technique for choosing and using grads requires two meter readings to be taken: one for the sky and one for the land, both taken from midtoned areas. Say for instance the land reading comes in at 1sec at f16 and the sky reads 1/8sec at f16. That's a three-stop difference between the two, so a 0.9 graduated filter will bridge that exposure gap, resulting in a 1sec exposure for the entire frame.

Grads can also be stacked together if a bigger exposure gap is measured and they can also be inverted. This is useful, for example, for a bright oilseed field and blue sky, where the field is brighter than the sky.

“You have a choice of graduation types: hard graduated and soft graduated”

▼ KIMMERIDGE BAY, DORSET

Although the scene was side lit the sky was around 2 stops brighter than the foreground. I placed a 0.6 hard edged grad over the sky bringing the gradation line down to the sea level



© Lee Pengelly

AFTER

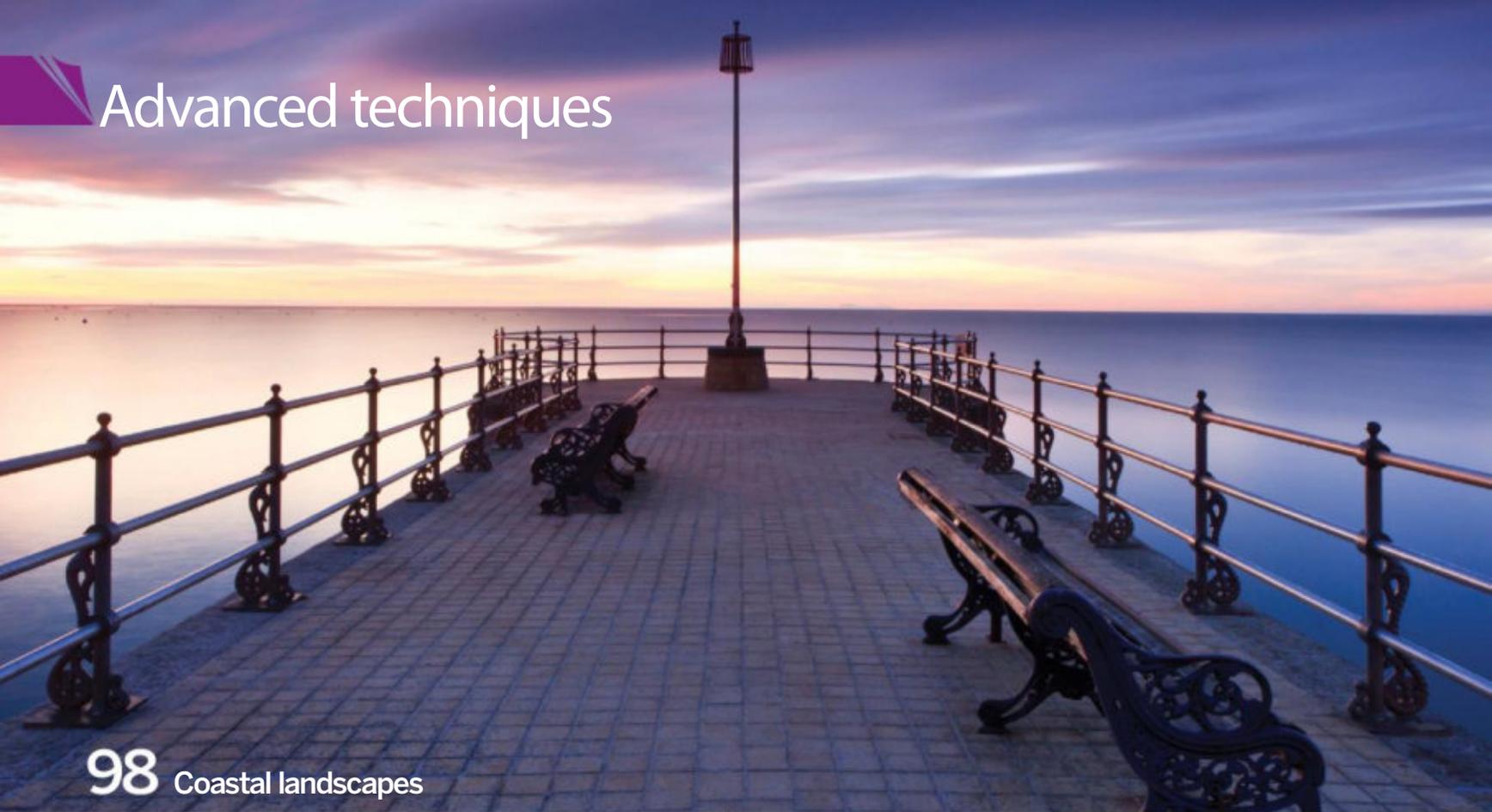
How to capture cloud motion

Discover how to capture movement in the sky using a grad

Grad filters can be used with other filters to create dramatic images of the landscape. Having a starting image in your head helps, as well as knowing how each filter used will affect the exposure, the elements, the colour. When shooting longer exposures we are going to end up with a result that the eye can't replicate.

Cloud motion is hard to capture, as it involves getting the right conditions and techniques. First the wind needs to be fairly strong, ideally blowing towards or away from you. Either way this means getting the tripod splayed as low as you can, weighing everything down to prevent it shaking and toppling. Grad filters can balance exposure between the land and sky, but also by stacking two grads together they will act in the same way as ND filters, extending exposure. Add to this a polariser and your exposure times will run into many seconds.

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The natural world is full of great imagery – learn how to capture it here

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How to get the best black & white images

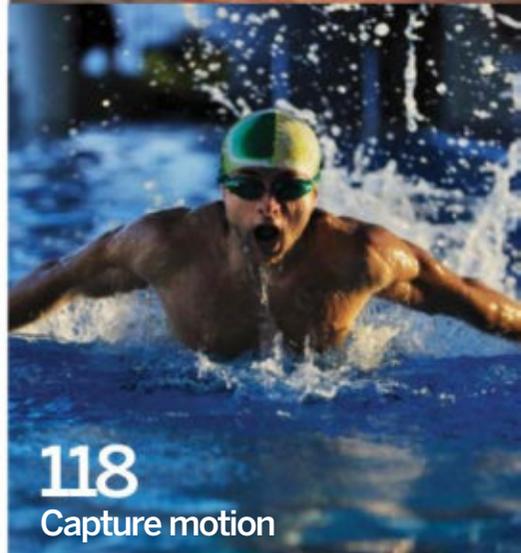
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SHOOT STUNNING COASTAL LANDSCAPES

Follow our comprehensive guide to getting professional results by the sea

People seem naturally drawn to water, and the coast in particular. We love spending our holidays there and for many people, there is nothing more relaxing than being by the sea, just watching the waves roll up onto the shore. Photographers are no different when it comes to this fascination with the ocean, and if you look at the portfolios of most landscape photographers, you'll almost certainly find a substantial collection of coastal images. The appeal is easy to understand.

There is often a real sense of drama at the coast – it's one place where you can really appreciate the raw power of nature. With its ever-changing weather and tides, no place will ever look the same on different days and the long-term effects of coastal erosion mean that changes can be both permanent and substantial, with the very essence of a location changing significantly over long periods of time.

There is also a huge variety of landscape on the coast – there are sandy beaches, shingle beaches,

rocky coves, clifftop locations, geographical features such as rock stacks and man-made subjects such as lighthouses and other coastal architecture. Perhaps the best thing about shooting by the sea, though, is that it looks good in almost all conditions and at many different times of day. Whereas some locations very much depend on golden light or colourful skies, with a little creativity, stunning coastal shots can be made in conditions ranging from violent storms to bright sunshine.

◀◀ CLIFFTOP DRAMA

The coastline is constantly changing, with different weather and tides at every visit. There are seasonal highlights too, such as the thrift on this Cornish cliff top



Plan and prepare

Leaving nothing to chance is especially important with coastal landscape photography

Good photographs are usually the result of careful planning rather than chance. This is especially true of coastal photography, where there are so many variables, such as the weather and ocean tides.

Preparation begins with packing the right kit. You will need lenses covering a range of focal lengths from wide angle to telephoto. Wide angles enable you to get in close to foreground interest and create dramatic perspective. Telephotos are useful for picking out details, such as waves breaking over rocks.

Next in your bag should go a set of filters, including a polariser for reducing glare on the water, graduated filters for dealing with contrast and neutral density filters to let you extend exposure times for creative effect.

A sturdy tripod is essential and you should make sure you take a cleaning cloth and some lens cleaning fluid to deal with the inevitable build up of sea spray on lenses and filters.

Good research is vital – there is no point turning up at stunning bay to find out that most of it is in shadow and that you should have come at a

different time of day or year. A lot of research can be done online – searches in image libraries can give you an idea of what to expect from a location and perhaps some inspiration for compositions.

Try not to be too influenced by what others have done before, though; it is much more satisfying to create your own original images than copy other people's shots.

There is no substitute for scouting a location yourself; find compositions, work out what tide heights will suit them and where the light should ideally fall. You can then use tide tables and apps such as The Photographer's Ephemeris to find out when to visit.

Check the weather forecast and plan accordingly. There is no 'ideal' weather for coastal photography, but some locations will suit particular conditions more than others.

▲ CHECK THE WEATHER FORECAST

Weather forecasts can't predict colourful sunrises, but by looking at the level of cloud cover, you can increase your chances of being in the right place at the right time

Key kit

To make the most of your coastal shoots, make sure you have the following items

● Wide-angle lens

These let you get in close to foreground interest in order to create dramatic perspective in your coastal shots.



● Polarising filter

Bright reflected highlights on water are a major headache when shooting by the sea. A polariser can help to reduce glare.



● Geared tripod head

A sturdy tripod is a must, but a good head to go on it is also important. A geared head lets you make precise adjustments.



Protect your equipment

Conditions can be harsh by the sea, so look after your kit carefully



• Cleaning lenses and filters

Filters and lenses often get coated with sea spray on coastal shoots. A lens cloth alone won't get them clean, so bring some good-quality cleaning fluid with you.



• Chamois leather

If a wave hits your kit, you need to dry it as quickly as possible. A chamois leather is perfect for wiping down damp camera gear.



• Cheap rain cover

The shower caps that are supplied in hotel bathrooms make cheap and very effective rain/spray guards, so pick one up next time you're travelling.



WIND WARNING

Many coastal locations are very exposed. Strong gusts can cause camera shake or even knock over a tripod; adding extra weight by hanging your camera bag from the tripod provides extra stability. Use a bungee cord so the bag sits on the ground and doesn't knock the tripod legs.

Consider the light

1 Early morning light With the Sun just breaking the horizon, the light is warm and golden. The low side lighting picks out the details and enhances the texture of the cliff.

2 Middle of the day Overhead lighting at midday is less flattering: contrasting with little textural relief, and the colour temperature is cooler. However, contrasting areas of light and shade add some depth.

3 Overcast light In overcast evening light the whole scene looks rather flat. Without the contrast of highlights and shadow, and no direct light to reveal form and texture, the image lacks depth.

Expose a coastal scene

Working close to the sea can present particular challenges that need to be overcome

In some ways, digital exposure is very straightforward: simply be guided by the histogram to make sure that you don't clip highlights or shadows.

Coastal images, however, present some unique problems. The tonal range can be extreme, ranging from deep blacks on rocks, particularly in shadow areas, to bright highlights reflecting off water. Skies can be extremely bright, especially at sunrise and sunset. Capturing the full range of tones requires excellent exposure technique, using graduated filters to tone down overly bright skies and polarisers to reduce glare on the water.

Graduated filters ('grads') are often preferred to exposure blending for controlling contrast, as there are many moving elements in coastal scenes that can cause problems when merging exposures. Using grads accurately requires some skill – you need to choose the correct strength filter and position it so that it blends in with natural features

unobtrusively. There are also different types of grad designed to suit different topography, with harder or softer transitions from the dark to light areas, and choosing the correct type for the scene that you're shooting is vital.

Remember that contrast does not necessarily reduce when the Sun is below the horizon. In this situation, the sky is lit from below, but there is no direct light falling on the foreground, so the tonal range can be extreme and filtration is still necessary.

Using polarisers properly also requires some thought. It's tempting to simply rotate the filter to produce maximum polarisation, but this

can often lead to unnaturally dark skies or water, so you need to use your judgement and turn the polariser enough so that glare is reduced, but not so far that it looks unnatural.

In addition to getting technically correct exposures, there are also artistic considerations when shooting on the coast. By using 'full' neutral density filters, it's possible to extend exposure times to creatively blur the movement of waves as they wash up on the shore or around rocks. Depending on the length of exposure, waves can be recorded as white trails leading out to sea or as an ethereal mist swirling around rocks.

BACK-TO-FRONT SHARPNESS

Coastal landscapes look great if you can keep the image sharp from foreground to background. To maximise depth of field, use a wide angle, a small aperture such as f16 and focus about a third of the way into the scene.

Understand filter transition zones

Grads are available with different strength transition zones – but how to choose the right one?



● Soft transition

With the horizon broken by a large cliff, a soft-transition grad is needed to prevent the transition zone being visible. Positioning the filter at an angle also helps.



● Hard transition

With relatively straight horizons, a hard-transition grad works best. Here the cliff breaks the horizon slightly, but not so much that the transition zone becomes visible.



● Very hard transition

With an absolutely flat horizon at sunset (or sunrise) the filter needs to be at maximum strength on the horizon – so a very hard transition grad is the best choice.

Interpret histograms

In extremely contrasty scenes, knowing which highlights to let clip is an important skill

• Extreme contrast

In very contrasty scenes such as this, it can be impossible to record the full tonal range, even when using graduated filters; you need to allow some highlights to clip.

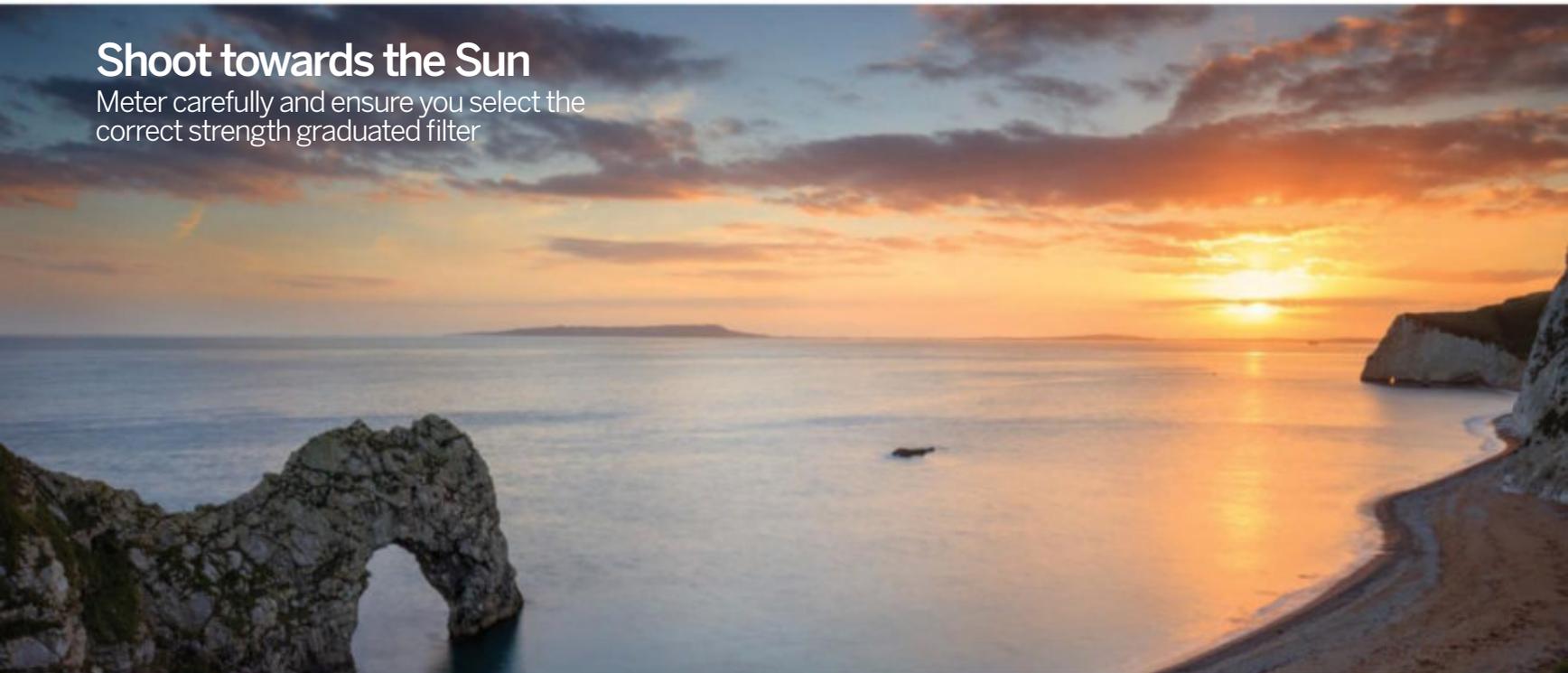
• Clipped highlights

Histograms show that highlights have been clipped, but not which ones. Activate the highlight alert in your camera's menu so blown highlights flash on the review screen. You can then decide if they are important. If the Sun or bright reflective highlights are blown, ignore them – only severe underexposure of the rest of the scene would prevent them clipping.



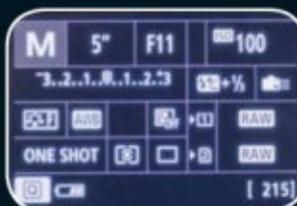
Shoot towards the Sun

Meter carefully and ensure you select the correct strength graduated filter



1 Meter the scene

You will need the correct strength filter for the filtration to look natural. Take meter readings from the foreground and sky (excluding the extremes) to establish difference in brightness, and then select your filter.



2 Position the grad filter

Decide whether you need a soft or hard grad and then put it in the filter holder – here the horizon was flat enough to use a hard grad. Place transition line on the horizon – moving the grad up and down can help you see the transition line.



3 Final image

Review the image and histogram. Check that, as far as possible, you have managed to capture a full range of tones, but you may need to let extremely bright highlights, such as the Sun itself, clip – as is the case here.

Compose a coastal landscape

Each distinct type of scene requires its own individual approach

Although we usually think of the coast as a single entity, there are in fact three distinctly different types of landscape: the clifftop, the shore and coastal architecture. The shoreline can also be divided into sandy or pebbly beaches and rocky bays. A slightly different approach is needed for each one.

Panoramic clifftop views can be breathtaking; above a drop, use a wide-angle lens to exaggerate the height of the cliff, with waves crashing down below and headlands stretching out into the distance. Wide angles are also useful for placing emphasis on the foreground, by getting in close to elements such as wild flowers or rocks. Telephotos can be used to compress perspective, reducing the apparent distance between headlands, or to focus attention on waves crashing over the rocks below.

With sandy and pebbly beaches, the key to success is to keep compositions simple, excluding any unnecessary elements. Place horizons and focal points such as headlands or sea stacks according to the rule of thirds, to balance the frame and look for strong foreground interest: boulders, rock pools, tidal pools, ripples in the sand and so on. Beaches are usually best shot at low tide, which creates a feeling of space. If you arrive as the tide is falling, you can shoot before the clean sand is spoilt by other people's footprints.

A similar approach works in rocky locations, but tide height is really important; it should be high enough to cover distractions but low enough to reveal interesting features. Shoot waves as they wash back out to sea to create lead-in lines as water rushes through gullies.

The coast has its own unique architecture – piers, lighthouses, harbour walls and groynes. These all make excellent foreground interest, background focal points or subjects in their own right. Lighthouses and piers make fantastic minimalist studies. Use wide-angle lenses to make piers and groynes stretch out to a vanishing point on the horizon, and give plenty of space around lighthouses to enhance the feeling of isolation and their openness to the elements.



1



2



3

Framing ideas to consider

1 Foreground interest Getting in close to foreground interest on the shoreline helps to create a sense of scale and depth and leads the eye to the background focal point.

2 Clifftop drama Wide-angle lenses can exaggerate the height of cliffs and create a sense of drama. Including some foreground interest can enhance this.

3 Leading lines Using a slow-ish shutter speed – in this case, ten seconds – as waves drawing back across rocky ledges can create dynamic, leading lines in a composition.

Work with movement in water

Many photographers use motion blur to add mood, but it's also a useful compositional device

Using neutral density (ND) filters to extend shutter speeds and blur water movement is a popular technique. It can enhance the atmosphere of an image, but the right amount of movement also works as a compositional device – adding texture to the foreground and drawing the eye into the shot.

1 Too fast

A shutter speed of around half a second is not enough to blur any movement in this image and the water doesn't really add anything to the composition.

2 Too slow

Thirty seconds is a little too much for this scene; the water is completely smooth and appears motionless, so fails to draw the eye.

3 About right

An eight-second exposure as waves wash over the rocks creates a subtle texture on the water, which breaks up the foreground rocks and leads the eye into the composition.



Go vertical

We generally feel more comfortable shooting in landscape (horizontal) format. However, shooting in portrait orientation can create very dynamic images, emphasising the foreground to create more apparent depth.

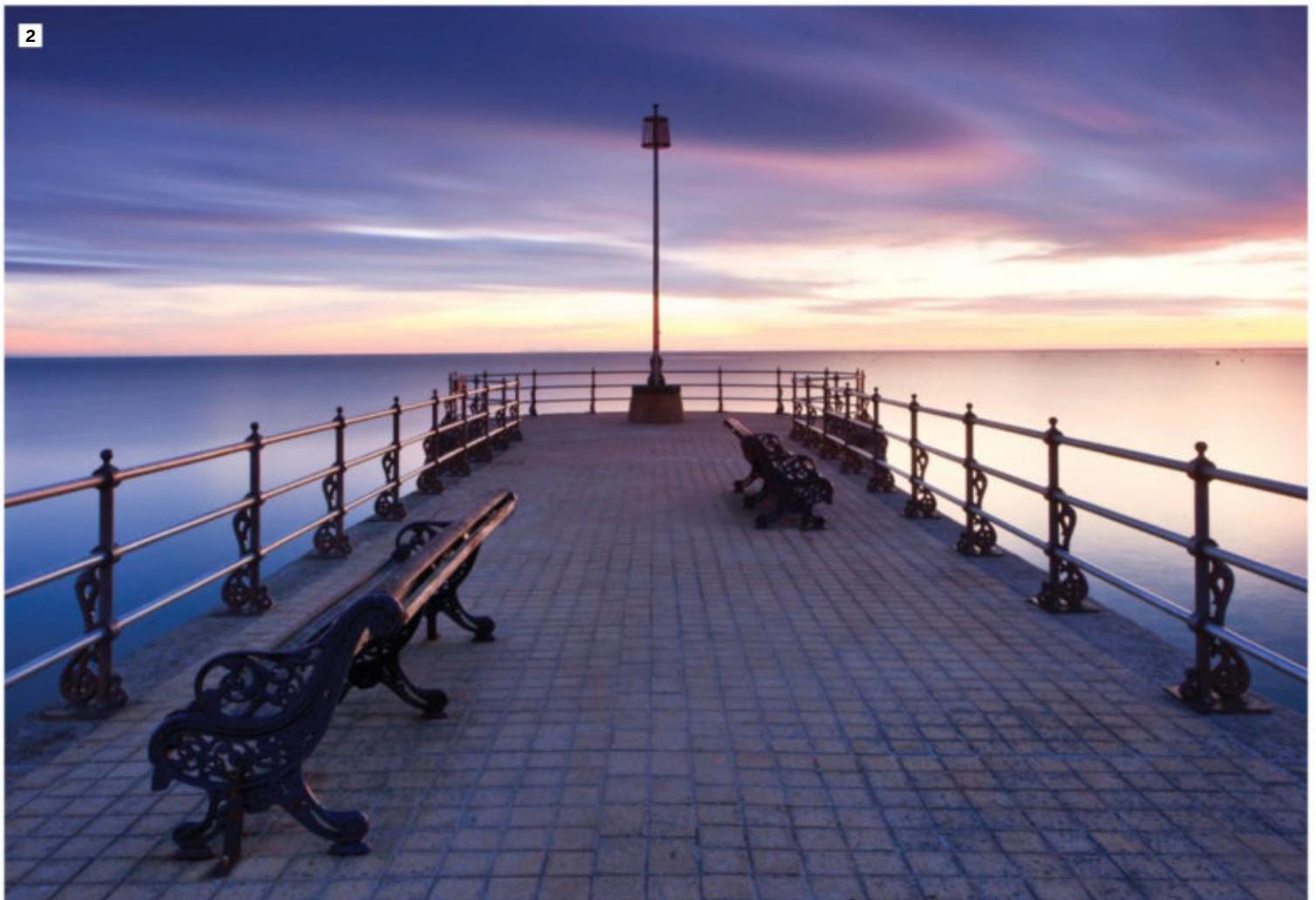


Think creatively

Adapt your images to suit the many different conditions you can encounter on the coast

Provided there is some texture in the sky, bad weather on the coast can be seen as an opportunity to shoot great images. Long exposures transform scenes, so fit an ND filter and, depending on its strength (extreme densities of up to 15 stops are available), exposure times will extend to several minutes. Calm water will be recorded as a smooth, glassy surface, often picking up reflections the eye cannot see; waves in rougher water will take on a misty appearance, or can create trails across the water's surface.

Simple compositions work well; make sure you leave enough space around the main subject for the moving elements in the composition. To enhance the atmosphere of these shots, set your



white balance to Daylight so that the naturally cool tones of cloudy conditions are captured. An alternative to this is to convert your images to monochrome. Many of these scenes are naturally monochromatic, so lend themselves perfectly to black and white. You can also push the contrast a lot more in a monochrome image than you can a colour one, so this is a very good way to deal with low-contrast scenes.

Don't let yourself be constrained by your camera's aspect ratio. Often, if you're struggling to 'see' a composition, it could be that the elements in the scene don't fit neatly into the standard 3:2 ratio. Consider

a square crop, which suits many coastal scenes, especially those which contain structures and have natural symmetry.

“Set your white balance to Daylight so that the naturally cool tones of cloudy conditions can be captured”

Shoot for the scene

1 Black and white

In overcast weather or flat lighting, you can add punch to your images by converting them to mono and increasing contrast.

2 Square crop

Not all scenes suit the standard 3:2 ratio; many coastal scenes work well in a square crop, especially architectural subjects which have natural symmetry, such as this jetty.

3 Long exposure

Waves crashing on the shore have been turned into mist by this 90-second exposure and the colour has spread across the sky.





LEARN TO USE COLOUR WITH IMPACT

Although we live in a visual world that's bursting with colour, it's all too easy to take the element for granted. Most photographers understand the power colour has to convey mood and atmosphere, and that different shades can be used selectively to draw attention to parts of a composition. However, when you begin to add specific hues yourself, with props, lighting effects and filters, you'll start to see your images take on new levels of impact.

In this feature, you'll find plenty of practical projects for you to explore in your own photography, whether you prefer to shoot outdoors, capture still life or work in a studio. You'll discover how to add gels to studio lighting for portraits with a twist, add some colour to a night-scene for dynamic landscapes and capture colourfully creative close-ups. Alternatively, if you'd rather make the most of the natural light that's available, try the step-by-step tutorial on shooting colourful timestack images during the golden hours.

Colour photography has almost limitless potential, as you'll discover over the next few pages. For example, pro photographer David Lund is on hand to reveal the high-speed techniques behind his brightly-coloured images of paint explosions, while there are also some great tips for creating physiograms and using projectors.

The aim is to breathe new life into your photography and help you to work with colour in a whole new way.

◀ MAKE COLOUR MATTER

Colour is an intrinsic part of all visual communication, but it's easy to take it for granted. The solution is to purposefully use colour for impact in your photography

© Mark Mawson

Advanced techniques



© James Luna/James de Luna

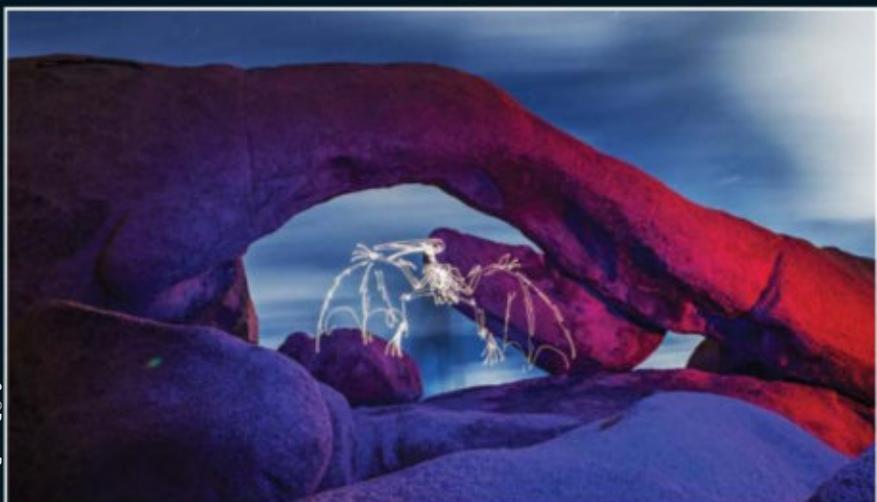
◀ **EXPLODING ORB**
Expert light artist James de Luna (facebook.com/Lunalightpainting) used an exposure time of 448 seconds for this capture

▼ **PTERODACTYL ARCH**
It's possible to paint in details and wash objects with light in the same scene, provided your exposure is long enough. Consider what colours complement each other

◀ **NEON CHAMELEON**
Darren Pearson saw a short window of opportunity for creating something unusual at White Sands monument. He used f9, ISO 50 and a 299-second exposure



© Darren Pearson



Colour the night

Add in multicoloured torches to your kitbag and let your imagination run wild after dark

Light painting is always a fun technique to have a go at and when you make colour your focus the imagery can develop into something even more unique and eye-grabbing.

There are two methods for painting with light, both relying on an extended exposure and the movement of a light source across the frame while the camera's shutter is open. Your first option is to use a large light source such as a powerful LED torch, to effectively wash objects with illumination and highlight them from an otherwise dark environment. The second approach is to draw across the frame, but of course you can also combine the two for impressive effect.

SPECIALIST TOOLS

There are a host of brushes and pens out there. Discover how pro painter Darren Pearson achieves his bold drawings using his own Night-Writer products (www.dariustwin.com/night-writer).

It's easy to adapt any normal torches into bolder versions by using coloured gels, cut to size and affixed to the front with tape. There are plenty of light-painting tools on the market too, should you want something a bit more specialist. The PixelStick (www.thepixelstick.com), for example has 200 LED lights arranged in a line, which can be individually set using software to change colour as and when you should need. Either using one of the preset patterns, or one of your own design, the tool is moved through the scene during a long exposure in order to produce vivid and detailed light trail effects. However, don't neglect the more affordable accessories, such as LED pen torches and glow

sticks either, which produce finer lines and bold fluorescent hues in the scene.

Unfortunately, there's no one-size-fits-all approach to camera settings, so you'll need plenty of patience and trial and error to get your shots spot on. Experimentation is half of the fun, however, so as well as tweaking camera settings, play around with the combination of light sources you use together in each scene. The longer the shutter is open, the more time you'll have to add vivid content. Before firing the shot, aim to get into position with the light source turned off or masked under a coat, for example. This way you'll avoid capturing an unwanted trail of light leading to your object or scene. It's ideal to switch your camera to Bulb mode and use a remote to fire the shutter – then you'll be able to precisely control the exposure time, closing the shutter as soon as you've finished painting.

Draw with light

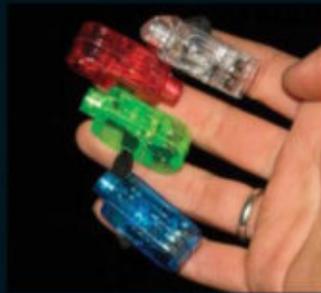
Make a bold statement wherever you're shooting and create colourful patterns or pictures from illumination



1 Focus the frame Move to where you'll draw and hold up your light source. Focus there and then switch the lens to manual. Use a cable release to shoot from a distance.



2 Set and test Use Bulb mode so you can stop the exposure once you've finished. Settings vary with each scene, but start with an ISO of 200 and an aperture of f5.6.



3 Press the shutter Fire a remote, moving quickly and evenly to create a pattern or drawing with your light sources. Dimmer torches will require a slower movement.



MULTIPLE EXPOSURES

This image was a combination of two frames, merged together in Photoshop. When working with different light sources, combining frames is a good way to construct a colourful scene.

Create a physiogram

Make use of a swinging torch and long exposure to capture beautiful swirling light patterns



1 Hang the light Set up where ambient light can be eliminated. Attach a small light source to some string, hang it from a structure overhead, and ensure it swings evenly.



2 Set up the camera Mount your camera on a tripod under the torch. Switch to Bulb exposure mode, turn the lens to Manual and focus on the end of the torch.



3 Test and tweak Use an aperture of around f16 and a low ISO. Turn off the lights, swing the torch and use a shutter release. A good starting point is 15 seconds.



© Wikimedia Commons/Manos.dag

SWINGING SENSATION

Choose a fairly wide focal length to begin with. Try shooting multiple frames with different torches, combining them in Photoshop for a dynamic result.

Colour an LED flashlight

Add gels to a high-powered torch and enhance interesting elements in your late-night landscapes



1 Prepare your tools Mount the camera on a tripod, then light your main subject, using Live View to manually focus. Cut a coloured gel and attach it to the torch.



2 Find the exposure Start with a shutter speed of 30 seconds, aperture between f3.5-f5.6 and ISO of 400. If the scene is too dark, switch to Bulb exposure mode.



3 Wash your subject Fire the shutter using a remote shutter and start moving the torch smoothly and evenly over the whole subject throughout the exposure.



KEEP THE FLOW

Keep moving over your subject in a steady motion, so that you don't overexpose one particular area. Once you've mastered the movement, try experimenting with different colours and lighting angles.

© Mark Mawson



Colour in action

Embrace a little chaos and discover how to shoot epic paint explosions

Commercial adverts are full of stunning examples of liquid explosions. Freeze-frames might look tricky, but they're bursting with coloured potential once you've got the know-how. While these projects do require extra kit, the results are well worth the added effort.

To get started, you'll need a couple of flashguns, as well as a way to trigger them off-camera. The speedlights you choose should be capable of a very low output but rapid flash duration to effectively freeze the movement of your medium. Choose a shooting location that's fairly dark, spacious and able to withstand some mess.

Always ensure that paints are safe for human skin contact and keep them away from the direction of your camera equipment. You'll need to work methodically, tweaking both the timing of the shutter release and flash power. You might also need to alter thickness of the paint, or the angle at which you throw the powder, for example, but you'll soon get there.

◀ AQUEOUS SERIES

Mark Mawson (www.markmawson.com) is well known for his vibrant captures of inks, paints and dyes. The imagery is the result of mixing, dropping and spinning liquids in water

Create a colourful explosion

Discover how pro photographer and liquids expert David Lund creates powerful paint and powder images



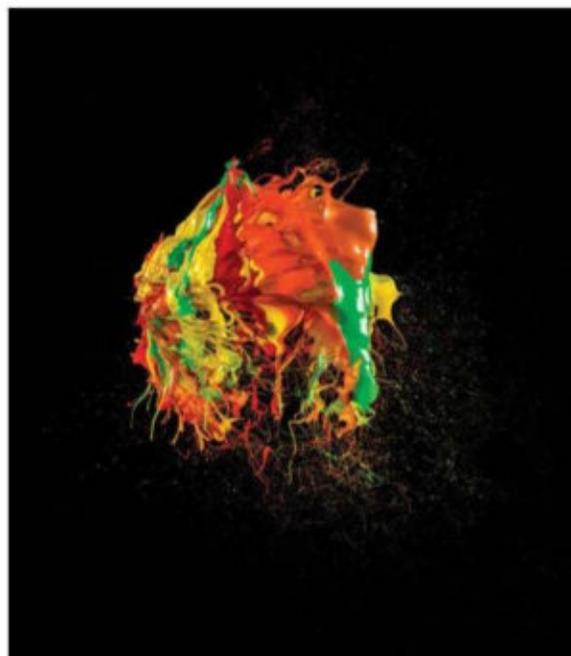
1 Colour the subject Hang a balloon from thin fishing line and pour bright water-based paints over it. Set the flash lighting to its lowest output but highest speed. Lund uses a Broncolor lighting kit and Scoro S packs, which can shoot at 1/10,000sec.



2 Link the set-up Link the camera, flash and a trigger device. Attach the sound sensor near the balloon or on the lens. Choose the lowest ISO and a shutter speed of around 1/800sec.



3 Fire and learn Trigger the shutter by bursting the balloon, using a long stick with a pin on the end. Increase the clarity in post-production to make the paint silky smooth.



Ar © David Lund

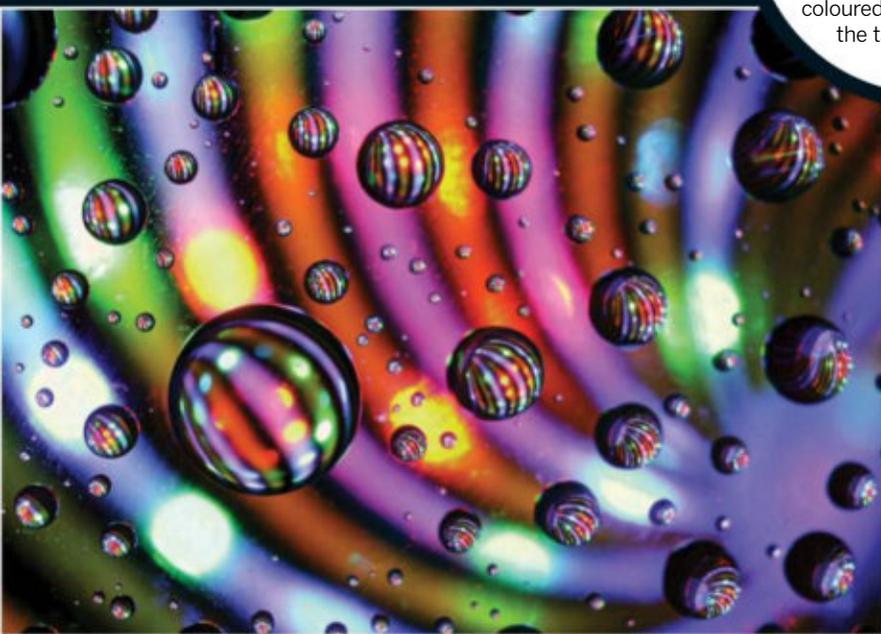
MOMENT OF IMPLOSION

"You can achieve amazing results with a normal DSLR camera and one or two flash guns off-camera," Lund (www.davidlund.co.uk) says. "[It's] the speed of the flash lighting that makes the paint appear frozen."



SHOOT INK DROPS

For a simple ink drop photography setup, fill a large glass container such as a tank with water, and cover three sides of it with white paper. Manually focus, add the coloured droplets of ink to the tank and shoot.



© Ryan Przybylski

OUT OF THIS WORLD

These water droplets were shot by Ryan Przybylski (500px.com/endprocess83). He used a pane of glass with a translucent spiral pattern placed behind, backlit with two multicoloured LEDs

Colourful close-ups

Equip yourself with use macro lens and learn to shoot abstract imagery of small subjects

Objects which might seem mundane to the naked eye can become visually fascinating when magnified in greater detail. Often, the simplest subjects work the best, enabling you to focus on their individual shapes, textures and of course colours, rather than the whole element itself. The added benefit of this is that you don't usually need a large working space.

Household items, such as coloured straws and paper, make particularly good starting points for this technique, especially when arranged in a repeating pattern. It's not essential to have a large depth of field when shooting abstracts, but ensure that your main focal point is obvious to the

viewer's eye, positioning it over a particular hue, defined edge or prominent curve in the image.

As well as colourful still lifes, remember that brightly coloured liquids, such as oil and ink, bring with them another realm of shooting possibilities.

For these, you're likely to need a speedlight to freeze their motion when suspended in water, as well as a container to create the arrangement. By adding in coloured gels to the setup, you'll be able to find even more combinations to enhance the creativity of your shooting.

While macro abstracts are, of course, great to shoot indoors, don't forget that outdoor plants and flowers also make viable options.

Capture soap rainbows

Generate psychedelic close-ups with a simple setup and toy bubbles



1 Prepare the set-up Mount your DSLR with macro lens attached on a tripod, positioning it near a window but out of direct sunlight. Fix a bubble wand in place with a clamp, then arrange a black backdrop.



2 Choose camera settings Switch to Manual mode and focus. Set an aperture of f8 and a shutter of at least 1/20sec. Select the ISO according to the available light, and angle the camera at 45 degrees to the set-up.



3 Focus and shoot Use Live View to manually focus on the wand. Dip the wand in the bubble mixture, wait for the patterns to appear and fire the shutter. Rotate the wand slightly if the rainbow effect isn't prominent.



EXPERIMENTAL RESULTS

No two shots will be the same in this fun project. The main challenge is focusing, due to the limited depth of field and shooting angle required.

Capture motion

Discover the best techniques for mastering long exposures and freeze action in its tracks

At its core, photography is all about stopping motion and capturing a tiny moment of time in a single freeze-frame.

It's for this very reason that photographers are constantly inspired to shoot action and show the reality of their images. There are different ways to capture a sense of life in a still image. You might decide to retain a blurring of the subject or trace that subject's movement, keeping it sharp in contrast to a blurred background. Adding artificial light to the mix then opens up a new wealth of creative possibilities.

There are so many situations in which showing movement makes for more beautiful and creative imagery, be it a wild wave crashing onto a cliff face, a speeding motorcar, or an athlete caught up in the heat of competition.

Learn how the pros use high-speed flash to freeze water droplet collisions and understand the magic of slow shutter speeds when capturing motion in serene waterscapes and landscapes after dark. Read on to master the best techniques for stopping time and capturing beautiful moments in motion.

A SKY FULL OF STARS

Using long exposures to capture moving water is an effective, creative way of working with motion, and can add a sense of drama to a scene

© Marius Kasteckas



Works best with
**AF-S DX NIKKOR
18-300mm f3.5-
6.3G ED VR**



© Ray Cooper

CAPTURE GROUPS

A flock of birds racing through the sky makes for a dramatic image, particularly when taken at dusk against a golden backdrop. Use Aperture Priority mode and dial in a low ISO to blur flight movement with a slow shutter.

Enhance nature's movements

Choose between pin-sharp shots or artistic motion blur when shooting wildlife and landscapes

Nature never stands still, and whether you're photographing wild weather, waves breaking on the shore, or a bird mid-flight, you'll never be short of subjects.

A pin-sharp image of an animal in action has mass appeal, and your first consideration should be your shutter speed. To achieve a great image, shoot in manual mode, select a wide aperture, and try to keep your shutter speed approximately equal to the focal length of the lens. For example, if you're using a 300mm telephoto lens, you'll need to choose a shutter speed of at least 1/300sec to avoid motion blur. Smaller, swift-moving subjects, such as birds, require a considerably quicker speed, closer to around 1/1,000sec.

For hard-to-capture subjects like insects, invest in a camera trap that's triggered by movement, light or noise, such as the MicroFlash Pro (www.highspeedflash.com), which is able to achieve a flash duration of 1/28,000sec.

If the shooting conditions won't allow for shutter durations that are this short, or if you're looking for something a bit more abstract, try panning

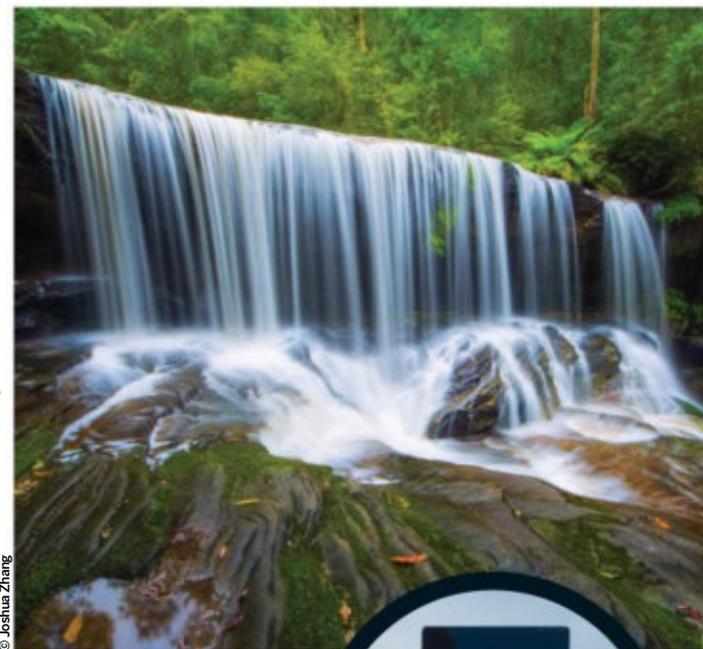
over your subject's movement with an exposure of around 1/60sec or longer.

Though panning is generally a technique associated with motor sports, it can be very effective when your subject's face remains relatively sharp and the background is blurred, and panning shots can really draw the viewer's eye into the image.

“For hard-to-capture subjects like insects, invest in a camera trap that's triggered by movement, light or noise”



© Mike Lacey



© Joshua Zhang

© Joshua Zhang

◀ **WING CHALLENGE**

Ray Cooper used a 1/1,000sec shutter to retain the motion blur in the hummingbird's wings

▲ **ANOTHER WORLD**

Landscapes are instantly more dynamic when they include motion through the scene

▶▶ **PERFECT TIMING**

In this shot a shutter speed of 1/1,600sec froze the waves' for a split-second

▶▶ **PEACEFUL SOMERSBY**

Zhang used a one second exposure to perfectly capture the smooth flow of the waterfall

Extend exposures with a neutral density filter

Blur water movement and create atmosphere in your landscapes

One of the most common subjects to use an ND filter with is water, as waterfalls and coastal scenes take on a whole new feel when the motion appears smooth and milky. ND filters are perfect for shooting during the day, and reduce the light entering your lens. The Big Stopper (www.leefilters.com) for instance will reduce the light by approximately ten stops. In real terms, this turns a 1/30sec exposure into a 30-second one that's perfect for recording smooth water motion.

As ND filters are available in a range of light-stopping powers, you might find it a more flexible solution to buy several varieties. To achieve a correctly exposed scene, compose the shot and take a meter reading before fitting your filter, then calculate the exposure time needed for the strength you want to use. Your filter will usually come with an exposure table, so use this to calculate the correct conversion and set your desired aperture and shutter speed. Use a remote release to fire the shutter, and take care not to knock the camera or tripod during the exposure.

GUIDE TO WATER MOTION



1/200 SECOND
Depending on the speed and size of the waves, a shutter of around 1/200sec will freeze most kinds of water movement

1 SECOND
A one- to four-second exposure will create a misty blur of water. The most natural look comes with speeds of 1/4 to two seconds

20 SECONDS
Between 4 and 30 seconds the water tends to lose its definition, and will take on a smooth, milky appearance. For longer exposures, use Bulb mode

Sport at speed

Capture athletes in motion by pushing shutter speeds to the limit

The genre of sport, by its very nature, conjures up images of subjects in motion, and images that freeze fast-paced pivotal moments. There's great scope for shooting movement in the sporting world, and preparation is key to capturing a great shot in the heat of competition. Get to know the sport you're photographing inside out, researching the rules of the game so that you're able to anticipate what's about to happen in front of you and be ready to shoot it.

In terms of technique, there's plenty of artistic scope for long exposures to convey movement, but if you're working for a professional client, you're probably going to need to freeze the action. To stop action, as a general rule, it's critical to use a minimum of 1/800sec shutter speed.

When you are using long lenses, shoot wide open using the maximum aperture to minimise any distractions in the background and ensure that your main subject stands out. Focus on particularly fast-moving objects using the back-button AF on the back of your camera's body, holding it down as you track your subject's movement. This will fire off a burst of shots right at the very peak of the action.

“Anticipate what's about to happen and be ready”

© Damiano Levati/Red Bull Content Pool



STROBOSCOPIC FLASH

Most modern speedlights are capable of firing a rapid burst of low-power flashes to capture a sequence of images of a moving subject in a single frame. Shoot against a dark background to avoid overexposure.

Combat shutter lag

Pre-empt the subject and speed up your camera

The term shutter lag refers to the time between pressing down the shutter, and when the photo has actually been recorded. When photographing fast-moving objects or people in motion, any delay is an evident problem, but you can overcome it to a certain degree by anticipating your shot and using presets on your camera. On most DSLRs, when you press down the shutter halfway, the camera will set the focus and exposure before you take the shot. Then, on a full press of the button, the shot should be taken almost instantaneously because the majority of the processing has already taken place.



COMPLEX ACTION

Photo sequencing only works when the object moves across a static background, but it's a great way to show the intricacies of potentially complex movements

MAKE A SPLASH

Use a mid-telephoto lens with a wide aperture to achieve the fast shutter speeds needed to freeze high-speed sporting action



Create a composite

Use continuous shutter mode and Photoshop

By shooting a sequence of photographs from the same position then stitching them together, it's possible to show an entire movement or stunt in one image. Set the high-speed continuous shooting, make use of a sturdy tripod, set the focus point on where the action is and leave it in manual. Make sure you use the same exposure throughout the sequence.

Open Photoshop, go to File>Scripts>Load Files Into Stack, and select your frames. Photoshop will open the images into layers and align them. Arrange the first image of the sequence as your bottom layer, then use layer masks or the Eraser tool on each additional frame to reveal the sequence.

FLASH CHAMPION

Slow-sync flash is a great technique images that are both sharp and blurred



Get creative with your speedlight

Use rear-curtain sync flash to capture creative motion trails

Combining a slow shutter speed with a short burst of flash will capture a subject that's still and sharp, but with the added effect of motion blur. By selecting rear-curtain sync mode on your camera, the flash will be fired at the end of

the exposure, rather than the beginning. This means that the ambient shutter blur occurs first. Slow-sync flash requires the use of relatively slow shutter speeds, to intentionally make the blur trail visible.



1 Select camera settings Use manual mode and dial in a relatively slow shutter. This image used 0.8 seconds, but the exact exposure will depend on your subject's speed.



2 Set up the flash Attach a speedlight onto your camera's hotshoe, and set the flash power to around 1/32. The flash will freeze the subject's motion – experiment with the power.



3 Choose rear-curtain Select rear-curtain flash and a slow shutter speed such as 1/60sec, which will record the ambient light trail. Put the camera on a tripod and shoot.

Dynamic transport imagery

Stop vehicles in their tracks by being creative with your shutter speed

Whether by road, sea, rail or air, transport is both essential and ubiquitous in our daily lives, but easily overlooked as a subject. Try capturing high-speed vehicles with intentional motion blur to emphasise their speed and dynamism. In particular, night-time and the golden hours are the perfect times to capture long exposures, especially when you are focussing on the movement of lights in the traffic, for example.

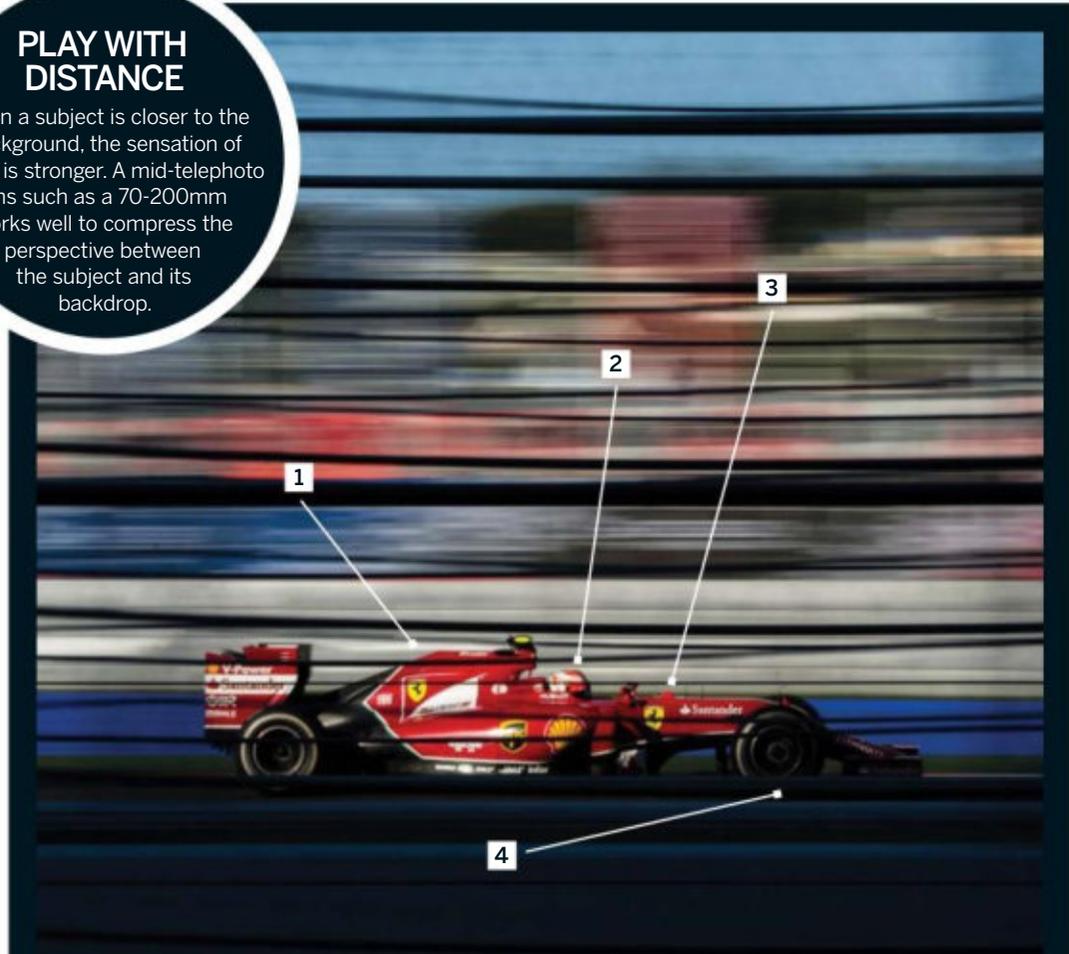
A great technique for conveying speed is to physically move your camera during an extended exposure, panning so that the subject remains in the same position in the frame. For the best results, set yourself up so that you're parallel to the path of your object, and so that it's the same distance away from you throughout the exposure.

Another option is to take pictures from inside a moving vehicle for a different perspective, bearing in mind that motion blur will be much more pronounced when shooting from a side window than it will be if you take the shots from the front or back.

However you choose to capture the action taking place in front of you, it's easy to enhance the effect in post-production using the Motion Blur and Radial Blur filters in Photoshop to subtly bring out the subject's movement even further.

PLAY WITH DISTANCE

When a subject is closer to the background, the sensation of speed is stronger. A mid-telephoto lens such as a 70-200mm works well to compress the perspective between the subject and its backdrop.



Master panning

How to get the best results with speedy subjects

1. LONG EXPOSURE

Panning shots require you to set a slower shutter than you would normally for a handheld shot. Start with 1/60sec and experiment with slower durations

2. SUPPORT IT

Use a monopod to achieve a smooth panning motion when tracking subjects across the frame. Use a model with a fluid head for the best results

3. STAY IN FOCUS

Switch your lens to autofocus and choose continuous autofocus from the camera menu. This will keep the subject in focus as you follow the movement

4. STEADY TRACKING

When your subject enters the frame, pull your elbows in, twist at the waist and release the shutter, continuing to follow the subject after it has passed

Compose the movement

Keep interest in the frame through engaging compositions

When you compose an image of a moving subject it's generally preferable to place the subject to one side of the frame and leave space for it to move into. This will create a feeling of balance and harmony, with the viewer automatically imagining the motion of the subject continuing across the frame. Use roads and light trails as lead-in lines through your shot. Try rotating your camera to experiment with the horizon and placement of lines – diagonal lines are more discordant but suggest movement.





PRAGUE UNDERGROUND

Transport and architecture go hand-in-hand for an interesting subject, but the addition of a light trail draws the viewer in

© Tristan O'Tierney



Capture light trails

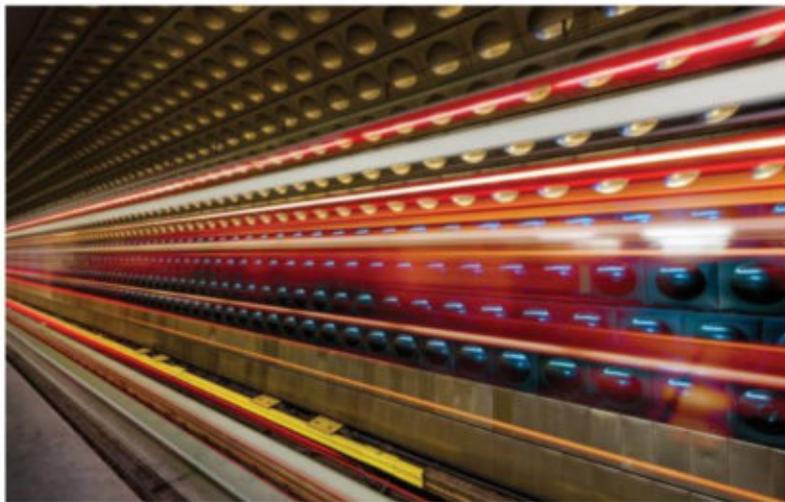
Record moving streaks of light with a long exposure

Capturing light trails is a great technique for urban environments, and involves using a long exposure to record streaks of light from moving vehicles. The difficulty comes with balancing the ambient light in the scene with the brightness of the moving light source. Use a sturdy tripod to minimise vibrations in the shot, and a remote release to fire off the shutter without touching the camera.

An ND filter is also useful for stopping out unwanted light from the

exposure. Position yourself somewhere that has a regular flow of traffic, such as a busy junction, set the camera to Bulb mode, dial in a long exposure and trigger the camera remotely.

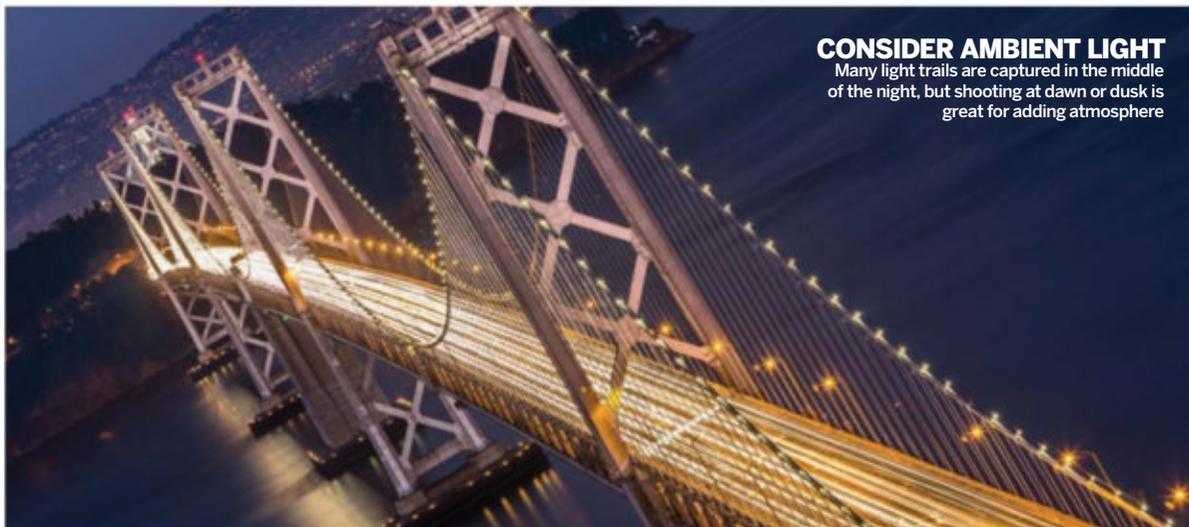
This technique is very much about experimentation, and the outcome will depend on the speed that the lights are moving, as well as the amount of ambient light that is available. Modify the white balance, shutter speed, aperture and ISO until you're completely happy.



© Tristan O'Tierney

CONSIDER AMBIENT LIGHT

Many light trails are captured in the middle of the night, but shooting at dawn or dusk is great for adding atmosphere



© Tristan O'Tierney

▲ PICK YOUR SETTINGS

The exposure you choose will depend on the amount of traffic and the time of day, but start with an exposure of ten seconds

◀◀ ENHANCE THE PERSPECTIVE

The 16mm lens used in this shot has exaggerated the depth and size of the underground train

Shoot with high-speed flash

Discover how to capture split-second moments

If you've ever looked admiringly at pro images of water droplets suspended in mid-air, it's easy to think you'd need years of experience and an expensive studio to get started yourself. High-speed flash is a technique that requires practice and patience, but it can be achieved using standard speedlights. You'll need to dial your flash units down to their lowest power settings to reach the very fast flash durations needed for freezing split-second action. You'll also need to use a device such as the TriggerSmart (www.triggermart.co.uk), to sync the camera's shutter with the collision. A long-reach macro lens is also necessary for close-up shots of intricate subjects.

When you've set up, take some test shots and check the precise focus on your camera or computer screen. Experiment with settings on the trigger controller and keep tweaking until you get the shutter timing just right. Once you've mastered shots of water, play around with the liquid you use – for example, use milk. You can also use food dyes in the water, or gels on flashlights if you want to experiment with colourful effects. Always protect your lens with a filter, as water spilling on your lens is easy to clean, but when using dye it becomes much more difficult.

“Use food dyes in water, or gels on flashlights”



© Markus Schilder

COLOURFUL ABSTRACTIONS
Create vibrant images by using coloured gels or translucent scenes in the front of your flash

MODIFY THE LIGHT

If you're using multiple flash units, adapt their output to create a balanced result. Bounce light off the ceiling or diffuse it with a portable reflector to create softer illumination.

LIQUID PLAY
Try using different kinds of liquids, as they will all react differently



© Andreas Stridsberg



© Andreas Stridsberg



© Markus Schilder

Meet the expert

Pro photographer Markus Schilder gives advice on the art of split-second captures

www.markusschilder.com

Bio: As part of his varied portfolio, Schilder loves the fun of shooting water collisions using high-speed flash.

What draws you to split-second images?

It's wonderful to capture ephemeral images of moments that only last around 1/10,000sec, and yet happen daily around the globe when it rains. We can't capture with our bare eyes... So it's a real pleasure to be able to manipulate a camera, controller and a drop sensor to precisely place one drop on top of another.

What kit do you use to achieve your images?

I use a Nikon D800 camera, a Nikon f2.8 105mm lens, Nikon SB-900 and SB-910 flashlights, a Camera Axe controller, the drop sensor and the most important ingredient, water. You can also add in extras, like rinse aid, which change the water's surface tension in the bowl... Food dye gives exciting colour too.

How do you set up a shot?

First I set up a bowl filled literally to the rim with water, so that the water nearly spills over. My camera is mounted on a tripod and I place the drop sensor above the liquid. In order to get the focus right, I place a screw inside the liquid and try to align the drop sensor with this screw, moving the screw until each drop hits it dead on. I then focus the camera's lens on the screw. Next, I set up my Camera Axe controller, fine-tuning the collision of several drops. The controller triggers the first drop, the second and finally the third and after a certain adjustable delay triggers the camera, which is set to Bulb mode, and the flashlights.

What creates the bright colours that are found in your images?

I use translucent acrylic glass, which acts as a diffuser. I then placed household straws of all colours right behind the acrylic. These can be arranged next to each other, but I preferred to wildly mix them together. I usually use direct lighting from behind, shooting through the straws and the acrylic glass to diffuse and tint the light.

What advice on settings could you give for this kind of freeze-frame photography?

It's very important to use flashlights with an adjustable low-power output. You can use any flashgun, as long as they can be set to 1/64 or 1/128 power output – this setting produces light for about 1/10,000 to 1/15,000sec.



▲ JUST A SPLASH OF COLOUR

Bright colours are not always the most effective, and cooler colours can create a different feel

◀◀ THINK OUTSIDE THE BOWL

Putting the liquid in something out of the ordinary will create a more exciting and abstract image

▼ BE IMAGINATIVE

You can change the light and ambience by moving the camera, but it's most important to have fun

▼ EXPERIMENT WITH DYE

Experiment by adding food colouring to the liquid for some interesting colour effects

© Andreas Stridsberg



© Markus Schilder



© Markus Schilder

VITAL KIT TRICKS FOR MACRO



Works best with
**AF-S VR
Micro 105mm
F/2.8g**

Once you've entered the fascinating world of macro photography, you will soon find yourself hooked on capturing intricate details of the everyday that can't normally be seen with the naked eye. With the huge advancements in digital photography, it's now possible to get closer to subjects than ever before, but that isn't to say the genre isn't challenging.

The technical nature of macro can make it seem daunting at first, however there's no reason you can't get superb results without hoards of specialised gear. In this feature, we'll start by exploring the difference between close-up, macro and micro photography, as well as the best kit for achieving each level of magnification.

Investing in glass for extreme macro shots can be a confusing and expensive

MACRO

Discover the tools you need in your kitbag to capture dynamic images of small-scale subjects



◀ DAMSELFLY DELIGHT

Insects become fascinating up close. Photographer Alberto Ghizzi Panizza (www.albertoghizzipanizza.com) shot this using a 60mm focal length

endeavour, so read on to gain an understanding of how the focal length affects subject-to-lens distance, and ensure that you pick the right glass for the subject that you want to photograph. Whether you're just getting started with the genre or fancy trying out a new technique, there are plenty of affordable accessory options that will enable you to modify your existing lenses. In macro, as

with all photography, effective lighting is also imperative, but one of the biggest hurdles is getting enough light to reach your subject itself. We'll introduce you to the different options available for artificial lighting to ensure that your subjects really shine through. Over the next few pages, discover the myriad of kit options on offer and guarantee your close-ups are truly compelling captures.



CHOOSE WISELY
You'll need to base the kit you need around the kind of results that you want to achieve

Master magnification

Demystifying the difference between close-up, macro and micro photography

There's plenty of confusion between close-up, macro and micro photography, but the easiest way of understanding the difference between these various fields is to think in terms of magnification. That is, the relationship between the actual size of your subject and the size of its image on your camera's sensor.

In close-up photography, a subject is typically reproduced between 1:5 and 1:2 life size, which can be achieved with many standard lenses simply by shooting an object at close range so it fills the frame. A true macro photograph is one in which the subject is reproduced at life size or bigger, with a reproduction ratio of at least 1:1. At its closest focusing distance, a true macro lens provides a magnification factor of 1.0x – so if you were photographing a one-inch wide dragonfly, it would be one-inch wide on the sensor. It's worth noting that these dedicated lenses are named as 'Micro' by Nikon, but in the context of glass it means the same thing.

Delving in further, micro photography can be thought of as an extreme form of macro

photography, dedicated to the capture of subjects using a ratio of 2:1 and smaller. With the exception of a few specialist outliers, there are few macro lenses that enable this sort of magnification on their own.

One method for equipping your lens for micro magnifications is to use a reverse mount ring, which reverses the lens on your camera so smaller objects are enlarged. These adaptors can be found for as little as £5/\$10, but significantly reduce the focus distance. Set the focus on your lens to infinity, and where possible, move the subject rather than the tripod until the shot is sharp.

However, the best method will always vary, and should depend on the size and nature of your subject as well as the environment that you're shooting in. Reversed lenses are well suited to still and studio-based subjects such as flowers, where you'll have time to really perfect the focus manually. In the field however, you'll find it much easier to capture elusive and fast-moving subjects such as insects using a dedicated macro lens.

MAGNIFICATION ON A BUDGET

For getting closer to your subjects, you could also experiment with extension tubes – hollow cylinders that sit between the camera and lens to provide greater magnification capability.

Know your lens

There are many different options for honing in on small subjects

CLOSE-UP

Many kit lenses have the ability to focus close-up to deliver reproduction ratios between 1:5 and 1:2 life size on the sensor. For example, an 18-200mm telephoto can provide a 0.24x magnification at full zoom.

TRUE MACRO

A dedicated macro lens should be able to reproduce a life-sized image of a subject on the image sensor – a 1:1 reproduction ratio. When choosing a macro lens, it's important to consider the working distance you will need.

REVERSE RING ADAPTOR

These metal rings screw onto the filter thread on the front of your lens, enabling you to mount it backwards to the body. The wider the lens you use, the higher magnification achieved, but you do have to expose shots manually.



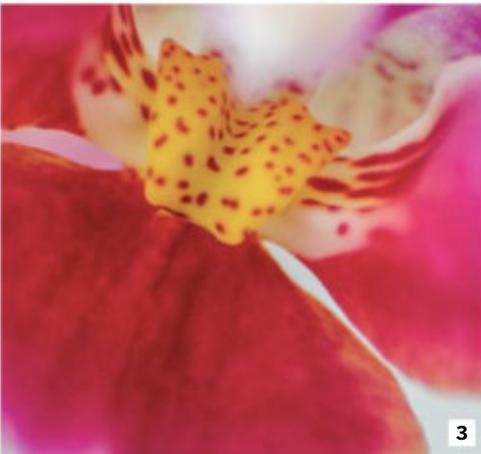
STANDARD LENS



MACRO LENS



REVERSED LENS



Subject A

1 Filling the frame Using an 18-200mm lens at its minimum focusing distance, it was possible to take a close-up shot of this orchid flower.

2 Subject distance Using a dedicated macro lens enabled a more intimate view of the flower, but the 60mm focal length limits the working distance.

3 Imprecise focus The combination of an 18mm focal length and an APS-C sensor provided greater-than-life size subject reproduction, but depth of field is limited.

Subject B

1 Limited enlargement At full zoom, it is not possible to capture a 1:1 life-size reproduction of the 50p coin with a standard lens.

2 Precise sizing A 60mm macro lens produces a photograph of the 50p coin that is life size on the sensor, focusing at 18cm away.

3 Plane of focus While reverse lens adaptors produce images with very shallow depth of field, this isn't a problem with flat subjects.

Subject C

1 Lacking sharpness When you use standard lenses at their maximum magnification, the images can lack the sharpness of a dedicated macro lens.

2 Shaky results While many macro lenses have image stabilisation, it's always best to mount the camera or lens on a sturdy tripod where possible.

3 Micro dew When using reverse lens mounts, the slightest movement will alter the focal point. Focusing rails and focus stacking can overcome this.

▲ 60MM LENS

While a 60mm lens has a minimum focus distance of only 20cm, generally it's the most affordable piece of kit

▶▶ 105MM LENS

Many mid-telephoto lenses such as Nikon's 105mm f2.8G IF-ED feature image stabilisation, and can be used for handheld shooting

▼ 200MM

Focal lengths such as 180mm or 200mm provide the greatest subject-to-camera distance, while also compressing distracting backgrounds beyond recognition



Explore focal length

Understand working distance to find the right lens

The focal lengths of true macro lenses range from around 40mm to 200mm, and while choosing the right length is ultimately determined by your subject, bear in mind that the longer focal length, generally the greater the cost.

Start by determining how much subject-to-lens distance you require. For example, a standard 50mm focal length might be perfect if you intend to document stationary items such as coins or flat artwork. To use this lens effectively, however, it will have to be positioned very close to the subject, which can not only get in the way of your lighting, but prove impractical with live subjects.

Mid-telephoto lengths such as 105mm provide a typical focusing distance of 30cm, which is ideal for flowers and larger insects, and their lighter price tag and weight makes them a popular all-rounder. Opting for a long telephoto lens such as a 180mm lens will provide you with a working distance of about 50cm. While this length is useful for framing flighty creatures such as butterflies without disturbance, it will also enable you to reach inaccessible subjects in the field when it isn't possible to move yourself closer.

Be sure to weigh up your budget and the working distance that you need when choosing your next lens, but also consider the perspective you want to achieve. For compressing distracting backgrounds, a longer lens is the most effective.



Illuminate your tiny worlds

Explore the macro lighting options that are available to you

The narrow apertures and close working distances used in macro photography often mean that natural light simply isn't bright enough on its own, and it becomes necessary to add an artificial source to the mix.

Introducing continuous lighting from a fluorescent lamp or LED unit is a simple way to boost the exposure, with the added benefit that you can reposition the lights to see the effect on your subject immediately. Less expensive than flash, continuous lighting suits still subjects in a home studio environment. Bear in mind, however, that this option provides a much lower power output than flash, and is far too cumbersome to use in the field.

Generally speaking, using on-camera flash or a singular flashgun casts unsightly shadows on close-up subjects, but a dedicated macro flash undoubtedly yields more controlled results. Ring flashes or twin speedlight units are the two most common options, and these attach directly to the camera lens. Because their power can be controlled individually, they also add dimension to images.

No matter your kit of choice, pay attention to the direction and balance of light, and how it alters the appearance of your subject. For example, side lighting emphasises highly textured objects,

whereas back lighting can enhance translucent materials. Experimentation is key, so always move around your subject while altering the flash outputs until you find the optimum result.



REFLECT AWAY SHADOWS

In some close-up situations, it's impossible to avoid casting a shadow on your subject. Use a small reflector or handheld mirror to bounce light back onto the scene, angling it towards the shadowed area for even illumination.

© Alberto Ghizzi Panizza



▲ LIGHTING EFFECTS

With dedicated macro lights, it's possible to arrange the setup to get unique results

◀ BRIGHT AND BOLD

Our home studio environment was poorly lit, but introducing flash gave the final photograph an exposure boost

▼ SPECIALIST MACRO FLASH

Speedlight kits such as Nikon's RIC1 have two separate flashes, enabling you to control the direction and balance of light



© Liam Marsh



◀ **MARbled WHITE BUTTERFLY**
Shooting into the sun and lighting the subject with a reflector can create drama

Put your skills to the test

Discover how to photograph small subjects using professional techniques

If you have ever tried to photograph a very small subject, then you'll have likely already encountered the joy and frustration associated with macro photography. Broadly speaking, there are two types of macro photography – standard macro and extreme or microphotography. There is a degree of overlap between the two and many of the techniques involved apply to both. There are, however, differences, and it is important to know when to employ each to get the best results.

A standard macro lens is one that, at its minimum focus distance, produces an image with a 1:1 magnification, meaning the subject is reproduced at life size on the camera sensor. This is the type of macro photography that you are

probably most familiar with. Standard macro has a broad range of uses but is best suited for small subjects that can still be easily seen with the naked eye. An extreme macro photograph starts where standard macro stops, beginning at 1:1 magnification and getting steadily more powerful. This makes it an ideal choice for either very small subjects or instances where you want to capture the tiniest of details. Having so much power isn't without its side effects, however.

These lenses are often very dark, which, when combined with the small apertures needed for

AVOID MOTION BLUR
When photographing small subjects, even slight movement in the camera or the subject can mean small details are lost due to motion blur. Avoid this imperfection by keeping your shutter speed up.

▶ **COMMON BLUE BUTTERFLY**
The image in the tutorial below combines a sharp foreground subject with a pleasantly blurry background

Essential macro techniques

Achieve the best results with a standard macro lens and natural light

All images © Liam Marsh



1 Compose the shot Think more than just where your subject will be. Consider which angles will create the most striking images and pay attention to the background.



2 Use a tripod Macro photographs are very susceptible to camera shake. A sturdy tripod will allow you to stop down the aperture for maximum depth of field.



3 Avoid harsh light Using natural shade or creating it with the use of a reflector will produce soft light. Avoid harsh direct sunlight where dark shadows can spoil your image.



4 Adjust the focus Switching to manual focus and using Live View will give you the greatest control. Focus on the most important details, such as a creature's eye.



5 Balance the scene Strike a balance between rendering your subject in focus and blurring background. Keep the shutter speed high to prevent camera shake.



6 Shoot for sharpness Use the self-timer or a remote cable release, as this will reduce the chance of camera shake and should give you sharper results.



FINAL IMAGE

macro photography, means a flash is required to light the subject. Another drawback is the working distances of such a lens. Focus distances can be as low as a few centimetres from the end of the lens. Getting this close to your subject, as well trying to fit a camera flash in such a small space, can make for very difficult working conditions.

There are two key factors as to why you might choose one style of macro over the other. The first and most obvious is the subject size. Standard macro lenses are good for larger subjects, or times where you want to include more of the surrounding scene, placing your subject within the context of its environment. The other key benefit is to do with lighting. While using a flash with extreme macro offers many advantages, there are those times when it can be a challenge to light an entire scene with flash. It's very common to see micro images with areas of black, which the flash has failed to light. This makes standard macro the better choice when your background is a long way from your subject.

© Liam Marsh



GREEN WEEVIL

A slightly less than frame-filling magnification allows more of the subject to appear in focus

HOVERFLY

Soft, even light from the flash removes harsh shadows and boosts colour in this image

Getting extreme

Once you've mastered the basics, you can experiment with higher magnifications



1 Consider working distance

Deciding what magnification to use will impact results. Higher magnifications will let you photograph smaller subjects but at the cost of working distance.



2 Work with flash

Using a flash to light your subject offers a range of creative possibilities. Most subjects benefit from being lit by soft diffused light, which removes harsh shadows.



3 Experiment with framing

With a flash, you are no longer at the mercy of camera shake, allowing you to shoot handheld. Make the most of this movement by tracking fast-moving subjects.



4 Go beyond autofocus

Forget about autofocus. All you need to do is move your lens closer to your subject. If shooting handheld, slowly rock the camera until your subject comes into focus.



5 Adjust your settings

To get the maximum depth of field, you'll want to stop your aperture right down, but beware at smaller apertures, images can become softer due the effects of diffraction.



6 Take the shot

When using such a dark lens with a very small margin of error, it can be difficult to get precise focus. Take lots of photos and experiment with camera angle and focus.



© Liam Marsh

© Alberto Ghizzi Panizza

▶▶ DRAMATIC EFFECTS

Focus stacking can provide incredible detailed shots of your subject

▼ APHID GIVING BIRTH

A single image constructed from seven stacked photographs



▶▶ IMAGE STACKING SETUP

A camera all setup up to start stacking images, showing the sliding plate and clamp to hold the subject steady



Discover focus stacking

Combining multiple exposures can overcome the limitations of depth of field

The biggest hurdle you must overcome with macro photography is getting to grips with the limited depth of field. There is no substitute for good technique, but while lens choice, aperture and composition all play their part in maximising depth of field, there are times when it simply isn't enough. That's when you turn to focus stacking.

There are two key benefits as to why you might decide to use focus stacking. The first, as the name suggests, is to increase the area of sharp focus. The second is that it enables you to select an aperture with regards to image sharpness without having to consider the need for depth of field.

The fundamentals of focus stacking are relatively straightforward. You take a series of

3x © Liam Marsh





3x © Liam Marsh

photographs where the only variable is the area of sharp focus. Then, using software, you combine all of those images into a single file. The result is a photograph with a much greater depth of field than would be possible with a single frame. In order for the software to accurately stitch images together, it must only be the plane of focus that changes. Lighting, composition and focal length must all remain the same for you to get the best results. The first two are easily resolved by mounting your camera on a sturdy tripod.

Maintaining the same focal length is not as obvious as it sounds. You might not realise

it, but when you move the focus ring on your lens, the focal length changes. It's only by a very tiny amount, but it's enough that when you are stacking images on top of each other, the subject can become distorted between shots. It's for this reason that focus stacking must be achieved by moving the position of the camera instead. By doing this, the focus area is changed but the focal length remains the same. The most accurate way to accomplish this technique is by making use of a focusing plate – which is a modified version of a normal camera plate that is able to slide back and forth by small increments.

CRAB SPIDER Four images stacked together to extend the depth of field

Focus stacking is not without its limitations. It's a slow process that requires good technique and patience. It's also only suitable for subjects that will remain still long enough for you to capture the required number of images. However, in the right situation whether you are stacking a couple of frames or hundreds, focus stacking is a fantastic tool for achieving photographs simply not possible with conventional techniques.

5 essential ingredients for **BLACK & WHITE**



Discover how to capture stunning mono masterpieces with this pro guide to the most important elements to look for

Partly because it's always been there, it's easy to take black and white photography for granted. As a result, we sometimes don't give it the respect it truly deserves. The overwhelming majority of digital cameras capture in colour, so converting to mono is, for most people, an afterthought, something to be left to the editing stage of the process when they are looking through their photos in Lightroom or Photoshop. Worse still, black and white is routinely used by photographers as a means of rescuing images that they aren't completely happy with in colour, as stripping a photo back to mono often solves problems with unpleasant colour casts or visual clutter.

But all of this does black and white something of a disservice. The very best black and white images are captured when the photographer has attuned their approach specifically to a world without colour; a world in which shape, form and texture are the key considerations. If these elements weren't at the

forefront of your mind when you pressed the shutter button, a successful black and white image is likely to be more a case of chance than design. Photographers who specialise in black and white photography consciously and deliberately seek subject matter that they know from experience will work well without the binding ingredient of colour, but this of course takes time to get to grips with.

To help you along your way, we've asked pro photographer and black and white expert Lee Frost to put together his expert advice for capturing better mono images, distilling his years of experience into the five essential ingredients that you need to seek if you want to capture better black and white. From seeking simple compositions to working in the ideal lighting conditions, the next few pages will have you shooting your best ever black and white photos in no time at all.



◀ HAVE A VISION

Setting out to produce successful black and white photos is a much better approach than simply converting colour images to mono and hoping for the best

All images © Lee Frost



▲ SPIRALLING TO INFINITY

This is the Tulip Stairs in the Queen's House, Greenwich, London. Spirals make great subjects because the eye can't help but follow them round and round to the very end

◀ CIRCLES AND CURVES

An arrangement of oriental umbrellas, photographed in a hotel foyer, reveals patterns within patterns and holds the attention for ages!

1 Compose around repetition

Whether natural, man-made, big or small, patterns make great black and white images

Man thrives on repetition, so we follow set patterns in our daily lives and include it in the architecture we construct. Patterns make great monochrome images because they attract attention and hold it. Repetition is reassuring, and with colour removed from the scenario, it's simplified and magnified.

The urban landscape is a great place to go pattern hunting. Climb to the highest viewpoint in your town and you'll see large-scale patterns in the layout of buildings and streets. Look down on the rooftops far below, or across tower blocks on the skyline. Now home in on part of the scene. Can you see the pattern created by those tables and chairs in the square below? What about the repetitious design in any one of the buildings – the hundreds of windows in an office block?

Patterns abound in nature, too. You could go to the same beach every day and return home with different pattern shots, simply because sand ripples change with each and every tide. But don't forget the patterns that are created by pebbles, or the patterns that are found on sea-worn rocks. Nature really does have plenty to offer any budding photographer with an eye for composition.

Frame your subject

Use repetition to focus attention on an event or person

Patterns add power to a composition because we can help but notice them, so if you're clever you can use that to your advantage. Echoing arches in architecture, lines created by columns, trees or shadows, the stripes created by weather-boarding on the side of a building – all these things will add a sense of depth and perspective to your images and can also act as a frame for your main subject by directing the viewer's eye towards it.



▲ ON REFLECTION

This old wooden bridge reflecting in the calm water of a lake not only creates a striking pattern, but also acts as a perfect frame for the passing cyclist

Double vision

Use Photoshop to create a strong mirror image effect



1 A straight conversion

This shot was taken in a subway in the Spanish city of Valencia. The pattern created by the struts and shadows looks great, but it would be even better with perfect symmetry.



2 Copy and flip

Crop the image vertically down the middle then make a copy of it. Extend the canvas for one half, then flip the other half horizontally (Image>Image Rotation>Flip Canvas Horizontal).

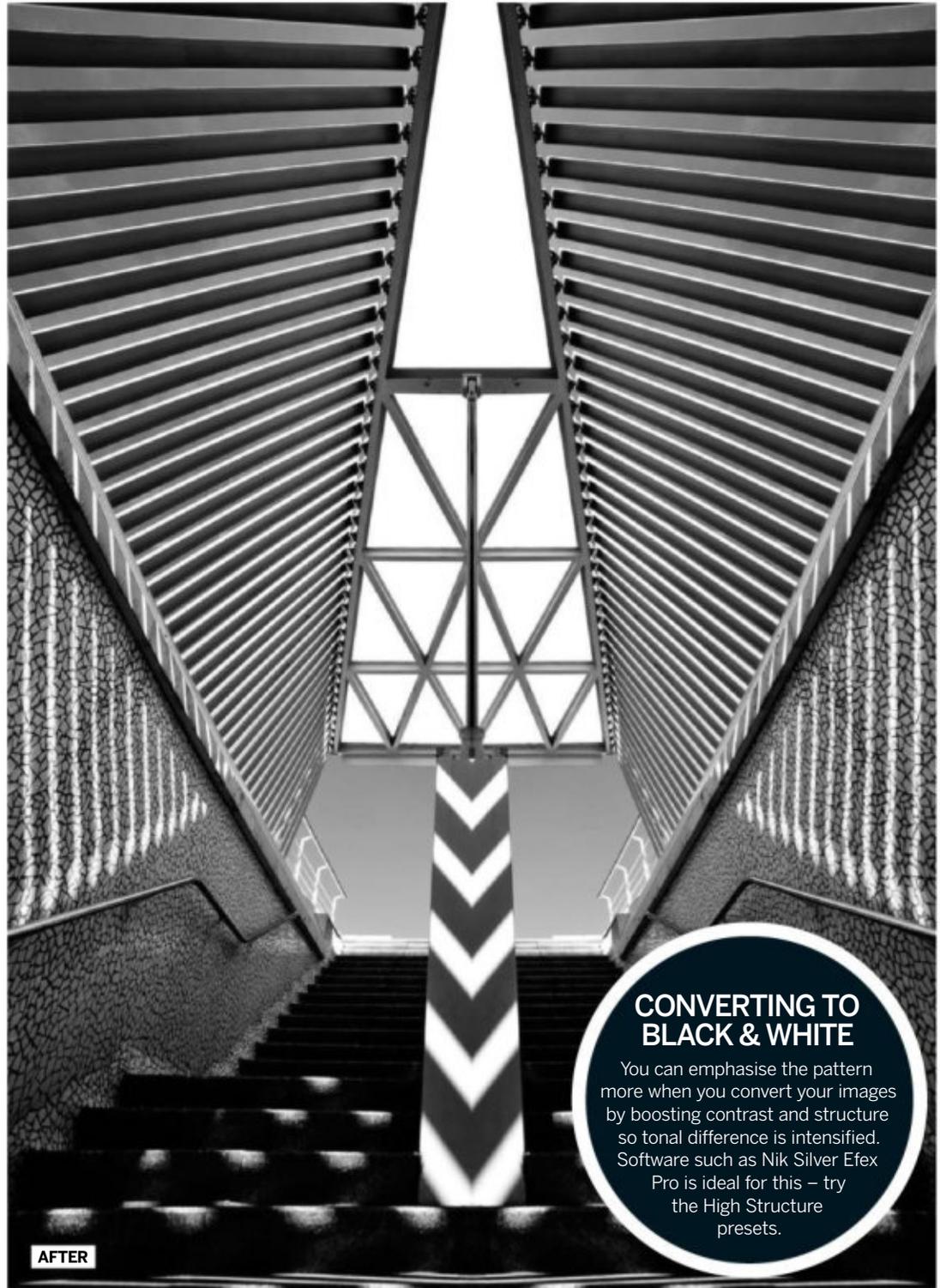


3 Drag and drop

Using the Move tool, drag and drop the flipped half onto the canvas, align the two halves, flatten the layers then make any final tweaks to the image.



BEFORE



AFTER

CONVERTING TO BLACK & WHITE

You can emphasise the pattern more when you convert your images by boosting contrast and structure so tonal difference is intensified. Software such as Nik Silver Efex Pro is ideal for this – try the High Structure presets.

When shooting patterns, you're not really dependent on a particular type of light. Dull days can work because low contrast light adds uniformity, so patterns can then be revealed in their true form.

Stronger light is also very useful. Low light glancing over a sandy beach or desert dune will reveal an intricate pattern of delicate ripples that you wouldn't be able to see in softer light. Shadows can also make a pattern much more obvious by providing tonal separation between the elements that form it.

A telezoom lens is ideal for isolating patterns and compressing perspective in order to emphasise them. Where patterns are smaller, move in closer and then fill the frame using a standard zoom or, if necessary, a macro lens. Compose your image tightly to exclude periphery details that dilute the strength of the pattern that you want to capture.

THE FINAL SHOT

Copying one half of the image then flipping and merging it down the central line has created a much stronger pattern with perfect symmetry – a simple but effective edit

2 Simplify your compositions

This is a great way to create bold and striking monochrome images

Cluttered compositions send out mixed messages rather than getting straight to the point. They lead to sensory overload, and instead of holding the attention they lose it, because the viewer can't quite make out what's going on. But once you start stripping away unnecessary details and getting right back to the bare bones of a subject or scene, you'll quickly realise how little is really required to create a strong image.

Removing colour is the first step, but you can do much more than that. When you compose a shot, take a look around the frame and ask yourself if

you really need everything you've included. If the answer is 'no', remove it. Adjust the focal length of your zoom to crop out any unwanted elements, or simply pick up your tripod and take a couple of steps forward.

If that doesn't work, start over and find a better viewpoint. You can also simplify an image during post-processing by cropping it to change the composition. It's always better to crop in-camera, but one of the many benefits of digital imaging is that you get a second bite of the cherry, so why not take advantage of that fact?



BEFORE

▲ TREES AND DUNES

This telephoto shot of Deadvlei in Namibia's Namib Desert makes a strong image, but the composition is perhaps too complicated

▼ SIMPLY PERFECT

By changing position and isolating one tree, the composition is made much simpler and more graphic



AFTER



3 Consider texture

Add a sense of depth and realism to your black and white images

When you remove colour from an image, it becomes reliant on other elements for its appeal. Texture is one of the most important, because it helps to create the impression of a third dimension. Lighting is the key.

Flat, overcast days aren't so useful because the light is too soft – you need strong light that glances over the surface of whatever you're shooting. Early morning and late afternoon on a sunny day are generally the best times, because the Sun is low in the sky and the light rakes across everything, casting long shadows that help to reveal the finest of textures.

But don't discount the middle of the day either. When the light from the overhead Sun glances down walls, it has the same effect on vertical surfaces as the low Sun does on horizontal surfaces, so you can shoot textures at any time of day that you want.

PORTRAIT POWER

Side-lit portraits look dramatic because they reveal texture in the subject's skin – which is great for character portraits. Posing your subject next to a window works well, or in the studio a single light with a brolly or softbox attached and placed to the side will produce great results.



Alternatively, create your own texture shots by lighting objects artificially. A digital projector or powerful torch is ideal because you can place it next to your subject, then use the light to reveal texture. Try this with dried leaves, dead flowers, seashells and anything else you can think of to create textured still-life images.

▲ FRONTAL LIGHTING

You can see from the way shadows are falling that this scene was lit almost from the front. The effect is bold, but a sense of depth is lacking

▲ INTO THE LIGHT

When shooting towards the Sun, contrast is sky high, with blown highlights and black shadows, but the combined effect can be fantastic

▲ FROM THE SIDE

The best way to reveal texture in a scene is by lighting it from the side. These delicate sand ripples were highlighted by the low evening Sun

USE PHOTOSHOP FILTERS

There's a whole collection of blur filters in Photoshop to experiment with in post-production. Field Blur, Lens Blur, Gaussian Blur, Tilt-Shift Blur, Motion Blur and others can all produce interesting effects.

◀◀ SOFTNESS IS A STRENGTH

A Lensbaby was used to take this shot. The sharp 'sweet spot' was adjusted so it fell over part of the bass while everything else blurred nicely

▲ FADE TO GREY

Fog is a very powerful filter as it reduces visibility and masks detail. Roads, piers, railways lines and avenues of trees are all great subjects/places to photograph in foggy weather

▲ DIGITAL PINHOLE

This landscape was captured using a drilled pinhole bodycap on a digital SLR. The pinhole acts as both the lens and aperture, hence the overall softness of the image



3 Add soft focus effect This is how the mesh sheet over the lens affected the image, adding a pleasant diffusion and some ghostly areas where light has reflected off the mesh.

4 Make final edits To enhance the effect, the diffused colour image was converted to black and white using Nik Analog Efex Pro 2 and a Dirt & Scratches filter was applied.



5 Look for high contrast

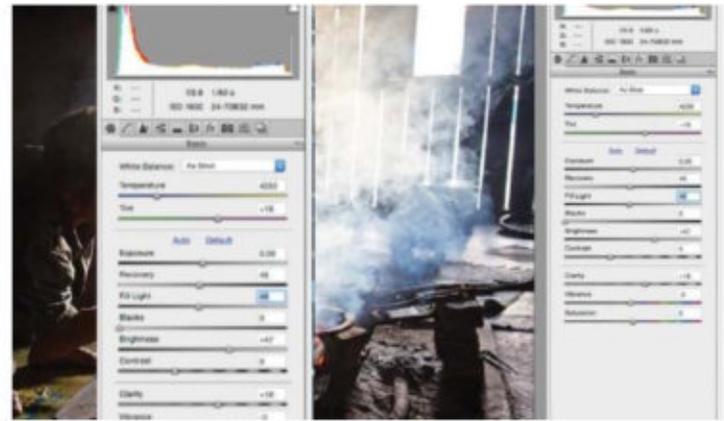
Strong shadows and bright highlights, with few midtones, looks dramatic

Artists refer to it as 'chiaroscuro'; a term that originated during the Renaissance era in reference to the use of bold contrasts between light and dark to reveal modelling in three-dimensional objects. This technique works brilliantly in black and white photography, producing dramatic, high-contrast images.

Light shining through smoke, dust and mist creates ideal conditions, as does sunlight beaming into dark interiors through small windows, or low sunlight casting long, dark

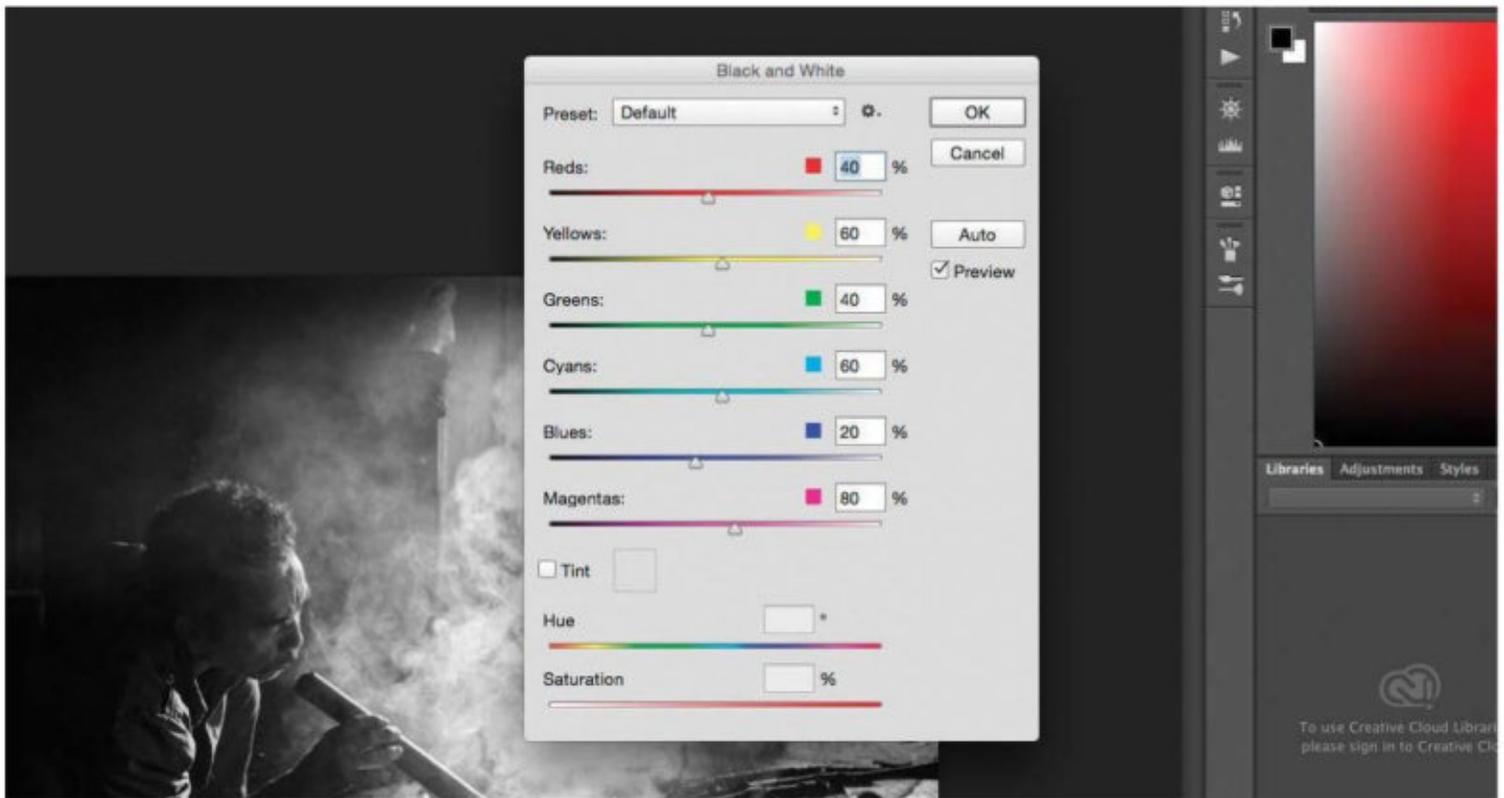
shadows. Shoot into the light to exploit the contrast between highlights and shadows, and don't worry if the main elements in the composition record as silhouettes or if the highlights blow out – contrast will be so high that it's almost impossible not to clip the darker shadows or blow the brighter highlights, but it doesn't matter because you can have true blacks and pure whites in an image. If contrast isn't high enough naturally, boost it when you convert the image to mono.

Enhance in RAW Use post-processing techniques to make the most of extreme lighting situations



1 Exposure adjustment The initial shot was underexposed due to the intense brightness of sunlight. To remedy this, the exposure was increased by +1 stop using the camera's exposure compensation.

2 RAW edits After opening the RAW file in Adobe Camera Raw, the image was edited to enhance the lighting and contrast using basic ACR tools such as Tone Curve adjustment, Clarity and Fill Light.



3 Black and white conversion The colour image was converted to black and white in Photoshop using Image>Adjustments>Black & White, then the contrast and tonality was adjusted using Curves.

FINAL IMAGE

The final shot

And here's the final result, cropped to tighten the composition. The drama of the contrasty lighting has been captured well – you can almost taste that wood smoke!



“Light shining through smoke, dust and mist creates ideal conditions, as does sunlight beaming into dark interiors, or low sunlight casting into dark shadows”

Stylish still life

The pro techniques and tips you need for shooting stunning products and arranged scenes

As far as photographic practices go, there aren't many that date back further than still life. Despite being one of the oldest genres, however, the fascination for capturing arrangements of everyday objects is still a viable photography profession, and unlike image making that relies on the weather for success, still life is easy to try at any time of the year.

You don't need a high-end studio to get started, and professional results can be achieved with an understanding of subtle lighting techniques and a few simple pieces of kit. Better still, the creative content is completely your choice, and definitely shouldn't be limited to just fruit bowls and flowers. With far fewer variables out of your control, the real challenge lies in capturing the form of your chosen subjects in an interesting and engaging way. Magazines and websites are always on the lookout for enticing product shots, so it can be a lucrative business to get into, but there's also a lot of scope for getting creative with fine-art still life.

Over the next few pages you'll discover how to create an affordable mini studio at home, the best ways to compose a scene and arrange objects, as well as illuminating them for the most stylish results.

The most successful still-life photographers make pictures rather than taking them, coupling a refined sense of lighting with strong compositional skills. Discover how to develop these qualities to make the most of your still-life shoots. 'The whole is more than the sum of its parts' is a common expression, but it's one that applies to the still-life genre. Though images can be used purely as a functional recording of an object or scene, modern trends have seen photographers pushing the genre, using striking colours and compositions to evoke mood, set a scene, or just please the eye. David Parfitt (www.davidparfitt.com) is one of these stylish image-makers – an advertising pro who's shot for impressive clients like L'Oréal, Condé Nast and John Lewis. "All my work is studio-based, [and] I'm starting with a truly blank canvas."

However, contrary to what you might think, you don't need a studio or an expensive setup to make a start with still-life photography, and it's possible to get good results shooting from a home location. In the kitbag of the pros, you'll often find large-format film cameras with digital backs attached. Parfitt uses a Sinar P3, a small bellows-view camera with a Sinar 86H digital back, allowing for "fine adjustments to ▶▶



© Phil Sills

▶▶ tag and a specialist nature that makes them hard to source, and there's no reason why you can't use your existing DSLR for full manual control over your images. A tilt-shift lens is an investment worth considering, offering you a great degree of control when it comes to depth of field and perspective. A sturdy tripod and reflector are necessary, and you'll need a dedicated area to shoot, such as a dining-room tabletop.

Choosing what to photograph should be your next step, and still-life scenes usually feature a range of objects along a similar theme or colour palette. Consider your background carefully, including architectural features, such as a window frame or door, if these add direction to your composition. Drapery can look cliché, but a tone that contrasts with the subject will add depth and interest to the frame.

If you're shooting for a client, the chances are you'll have your subject provided for you, and you need to make it look as attractive and enticing as possible to the viewer. As a successful London-based photographer, Andy Grimshaw (www.andygrimshaw.com) knows commercial product and still-life shooting cross over a lot. "They're both about crafting lighting and

▶ PAINT APPLE

This shot was created to show form and shape. Paint was used to wrap around the objects, with the fruit then removed in post-production

▶▶ GET CREATIVE AT HOME

A home studio setup needn't be expensive. Experiment with the quantity and position of the lighting until you get the desired results

composition," he states, and he often makes use of household items such as Blu-Tack, tape and string to craft a scene together.

A well-arranged scene generally avoids symmetry, but it's also vital to find an angle and perspective that displays objects to their full potential. "If the shoot is to a

brief, the client will be looking to accentuate their product's features, and this often determines the composition.

If I'm working on my own work I will probably have thought about how I want the final image to look in terms of lighting, colours and composition." Grimshaw solidifies his ideas by sketching out the composition and lighting setup before the shoot, refining it as

he goes. He also admits to working with as few lights as possible. "The Sun only creates one shadow so to create a natural look I think it's ▶▶

KEY SETTINGS FOR INDOOR STILL LIFE

Generally you should be using a low ISO of around 100, narrow aperture such as f16, and a tripod to keep the images sharp. White balance is a subjective choice, but daylight is the most neutral.

Prepare for still life



© Phil Sills

Photographer Phil Sills shares his expert advice for shooting stylish still-life imagery

www.philsills.co.uk

Bio: Sills has over 20 years' experience photographing in the advertising industry, working for high-profile clients such as Lexus, British Airways and Lipton.

How do you approach the styling and composition of a still-life scene?

The subject is hero every time. I like simplicity in approach. I always go for the angle on the subject as the first job to get right, and the main light source is the next-most important thing.

What lighting kit would you recommend for those starting out with still life?

You need to think about what images you are likely to create. If catching movement is going to be your thing then lighting has to flash. Start off with three or four mono blocks, with a softbox, a strip softbox and a couple of ways of controlling the light with grids or a snoot.

Do you have any favourite lighting setups?

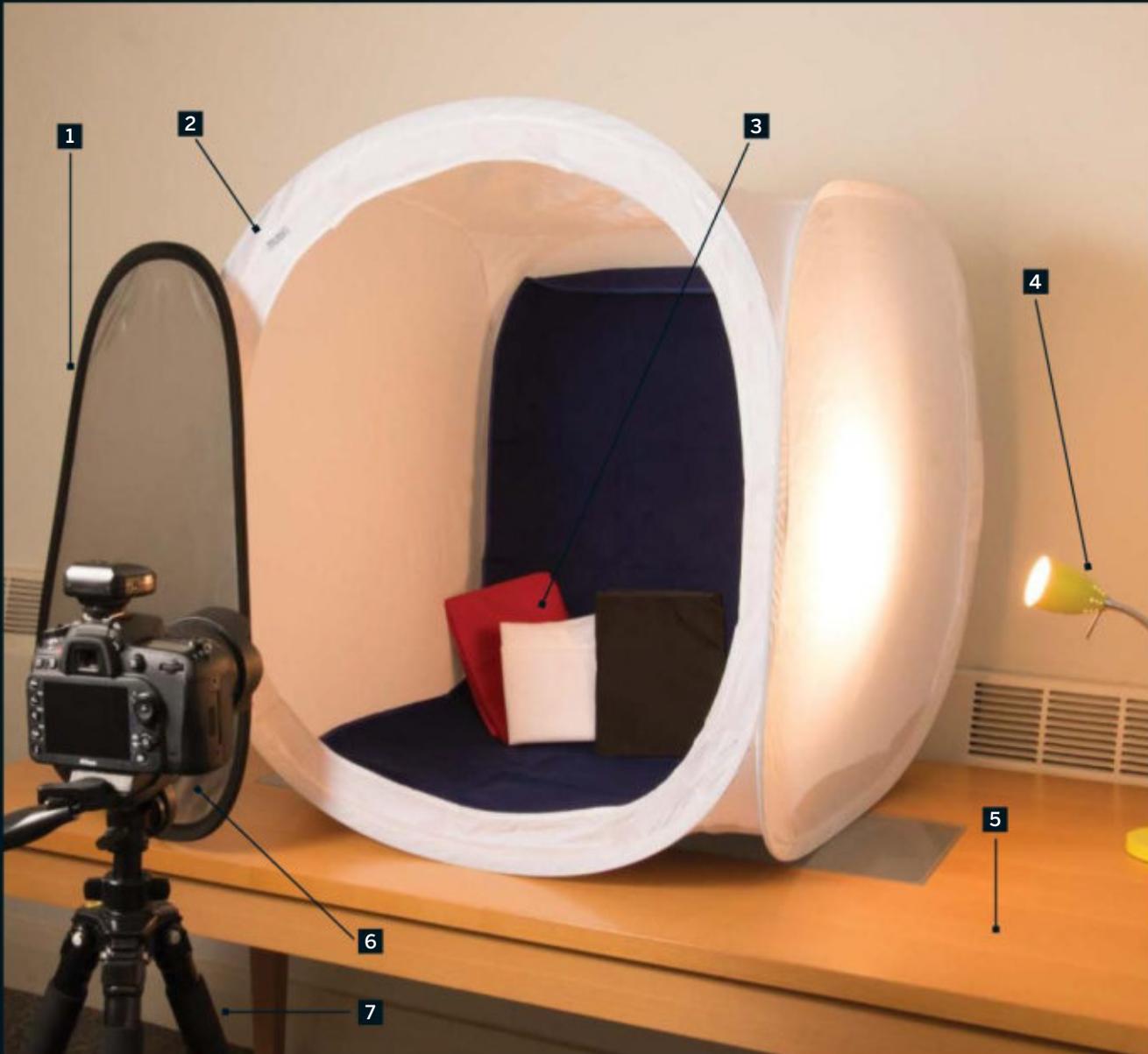
I try not to be repetitive. I try to maximise inherent qualities in the object and keep the options open with a hope to really discover something interesting and new. Saying that, I favour shooting objects in isolation so they can be lit properly, placing objects onto a small plinth rather than a flat surface.

Phil Sills' top tips for still-life shooting

- **Pre-visualise** Plan out your images on paper first. It's really important to know what you are trying to achieve before a shot is set up.
- **Focus on technique** Don't get caught up in the technology rat race. What will get your work noticed are your images, not your camera.
- **Create a concept** Keep ideas simple by thinking of the key phrase you are trying to communicate and work on showing that through your composition, props and lighting.
- **Experiment** Never be afraid to try something out, even if you make mistakes [along the way].
- **Find inspiration** Be sure to look at what other people do, however don't copy their work. Find a way to make the image your own.

Create a mini studio

Use a tabletop setup for stylish still-life projects at home



1. REFLECTOR

When you need to bounce light back, angle a reflector to fill shadowed areas. Look for one with both silver and white surfaces.

2. LIGHT TENT

These inexpensive translucent structures will light your subjects evenly and cut out reflections. Ensure the tent is as crease-free as possible.

3. COLOUR BACKDROPS

Fabric backdrops often come included with a light tent, but you can use material such as paper or crushed velvet. Smooth out folds before shooting.

4. DESK LAMP

A small lamp with a flexible head is ideal, enabling you to direct the light. Use two to add foreground and background lighting, and boost exposure on dull days.

5. TABLETOP

Any large, flat surface will work. Avoid positioning your table against busy backgrounds such as wallpaper. Opt for plain, light walls that'll help reflect light.

6. DSLR

A camera with full manual control over exposure, focus and white balance is best for still life. Use the self-timer mode to avoid camera shake when you press the shutter.

7. TRIPOD

A sturdy model is essential to avoid motion blur. Use a flexible ball head to vary the angles and heights for creative compositions.

Light reflective surfaces

Learn how to photograph shiny objects such as metal and glass

1 SET UP THE SHOT Arrange your objects to shoot on a tabletop setup. Use a large, diffused light source, such as a softbox, and move it so that it is directly above your tabletop scene, lighting it from above.

2 CHOOSE YOUR SETTINGS Select a low ISO on your camera and an aperture of f16 for a sharp result. Place the tripod, attach the camera and make sure your reflection can't be seen in the object.

3 POSITION THE LIGHT Move the light into several different positions for varying results. Adjust the light intensity so that it is to your liking and use the white panel of a reflector to fill in any shadows.

►► essential to have one main light source. First work out where you want your main light to come from and where you want the shadow area to fall, as well as how hard or soft you want the illumination to be.” He works with the main light first, then adds in fill lights to see what effect each creates, also “reflecting light back in to the shadow areas with a handheld mirror.”

Pro photographer Phil Sills also has plenty of experience illuminating objects of all shapes and sizes, and knows how important it is to light for the shape and form of your subject. “Whether [it’s] technically correct or not to say, I am always looking for the right angle of dangle. Front lighting is great for strong colour, but then your subject won’t have any form.” Interesting lighting includes light and shade, and Sills notes, “a dynamic light will almost always be the one from the back that wraps around the subject and brings out texture. Depending on how much contrast you want, light can then be added from the front.”

For him, it’s not so much the kit that is important, but what you do with it. “A few small tungsten heads will get a new still-life photographer under way. They will be cheaper to buy than flash units, and the beauty about tungsten is you can see what you are doing when moving the lights around. Get a couple of spare stands and some flexible lockable arms to put flags in and that should be enough.”

Like all image-making, clever lighting techniques are key to achieving an impressive end result, and it’s important to remember that the brighter and smaller your light source, the stronger the shadow it’ll generate. If you’re using a desk lamp, you can easily soften the light. Use the white, diffusing surface of a reflector and place it in ►►



Arrange your scene

Select and place items to create a visually engaging shot

Still-life imagery might look as if they are just simple collections of items, but photographers carefully consider the arrangement and choice of subjects in their scenes to create mood and interest. It can be useful to first sketch out your composition ideas. When searching for objects to include in your setup, look for different sizes and shapes, interesting textures and a variety of light values that you can work with. Try to avoid symmetrical placement, as the composition will be much more engaging when the interval between items is uneven. Create depth in your frame by placing some things closer and others further away from the camera.

LOW-KEY LIGHTING

Arrange a dark material behind your subjects, eliminate as much of the ambient light as possible and position a flashgun to the side of your setup. Set a low power, an ISO of 100 and a narrow aperture. Tweak the settings until you reach the desired exposure.

Secrets to great shots

How pro David Parfitt took this image

1. NARROW APERTURE

Still-life compositions generally work best when the whole scene appears sharp. Use an aperture of f16, and focus manually for pin-sharp results.

2. SIMPLE BACKDROP

This background complements the subject rather than distracting the viewer’s eye from it. Choose backdrop materials with a similar colour and style to the object you’re shooting.

3. DIGITAL BACK

Parfitt has used an electronic image sensor attached to his Mamiya film camera, a method favoured by many studio photographers to capture incredibly high resolution.

4. CONTINUOUS LIGHTING

Using continuous lighting over flash means that you can see the effect of light adjustments instantly, tweaking their balance and position until they’re perfect.



▶▶ front of the light source to immediately see the shadows soften. You can diffuse the illumination by lighting through various materials, such as Perspex, or even baking and tracing paper.

There is no one-size-fits-all lighting solution, and each setup should be tailored to show off your focal point. Subjects with interesting edges look great when they're lit from behind, and you can highlight the shape of your subjects by using off-camera flash. Position a flashgun behind the subject to create a rim-light effect, pointing the unit directly at the camera, but avoiding lens flare.

Painting with light using a torch and long exposure is another effective way to add dynamic studio-style lighting to your shots, and isn't just a technique that's best used at night. Set your camera to manual mode with manual focus, and remove all ambient light from the room by turning off lights and shutting curtains. Press the shutter and use short bursts of the torchlight to cover all faces of the subject. It may take a few attempts to get the right exposure, but a well-lit final image will be packed with contrast. If you want to experiment even further, use different-coloured LED torches and build up layers of tone.

Subject matter is key to stylish still-life photography, along with paying careful attention to lighting and a clean and balanced composition. Dig around second-hand shops to pick up interesting and quirky objects that have the patina of old age, and experiment with as many lighting styles as you can for each scene you craft.

Grimshaw studied any and all photography books he could get his hands on to see what kind of images he liked, but "inspiration is everywhere – it could be anything from dappled lighting reflected off a car, to making jelly with the kids, you just have to look." There's no excuse for not having a go at still life.

▶▶ FIND A PERSPECTIVE

Parfitt studies the object he's going to photograph from all angles before reaching for a camera

◀◀ FRAGRANCE FORMATION

This well-lit product arrangement by David Parfitt was taken using a Sinar P3 camera, a bellows camera with a digital output attached



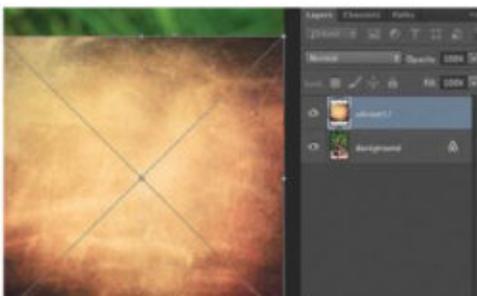
© David Parfitt



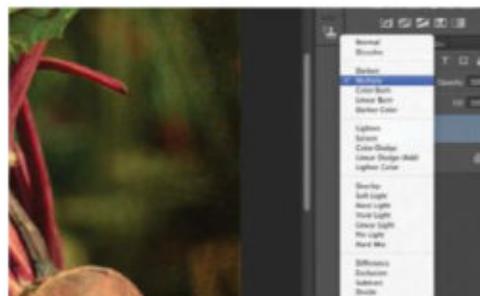
FREE TEXTURES

Access, download and keep 100 free Vibrant Vanilla Spring textures from FileSilo at www.filesilo.co.uk/bks-992

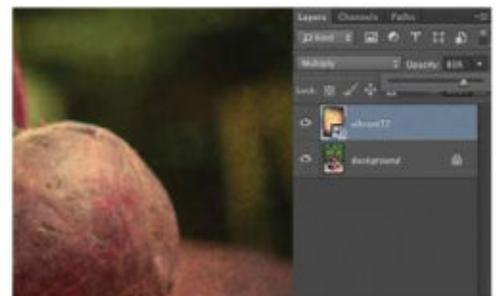
Create textured images Enhance still-life shots by blending layers in Photoshop



1 Open your layers Drag and drop your texture on top of your main image. We used vibrant12, downloadable on FileSilo. Scale it according to how you want to overlap the shot.



2 Set the blending mode Trying out various blending modes sees different effects, but the most useful is Multiply. This shows the original colour palette while slightly darkening it.



3 Change the opacity If the texture obscures your original image, adjust the Opacity of this layer by using its slider to make the effect as pronounced or subtle as you like.

The essential guide to

Editing

Use Photoshop to edit and transform your Nikon images from average to awesome in the post-production phase of your project

Over the years, Photoshop has become a hugely important part of the photographic process. More and more photographers now rely on this software instead of using the traditional on-camera settings, even though Nikon offers its users all the control they could want. This is because in the post-production phase you can push your images to the next level and achieve fantastic creative results that just couldn't be captured on your camera alone.

Many factors can let down a photo-shoot, be it the weather, poor equipment or a shaky hand, but all of these flaws can be edited out and corrected. When using Photoshop you only need to master a few key techniques to ensure that every editing project looks professional and your images perfect.

Once you have these skills mastered, you can really start to develop and learn to hone your creative skills.

Over the next few pages we'll run through all of the key Photoshop tools and features that you'll soon find yourself unable to live without. Follow along to learn how to achieve the best photographic-style effects such as retro and cross processing, high-key summer lighting, textured overlays and even how to create polished high-end advertising pieces.

We'll also cover all of the key features and tools you'll need to get started. Read on, whet your appetite and get inspired to delve further into the creative possibilities that Photoshop can offer.

▶ CREATIVE EDITING

We'll show you everything you need to get creative in Photoshop for expert results



After

This shot is now hugely improved, after just a few easy tweaks

Before

This image looks dull and flat, and in need of some editing attention



Finding a style

Getting your photography work recognised is vitally important as a photographer. Your images need to stand out from the overwhelming amount of photographers who are now displaying their work on the web and on social networking sites. Developing a unique and easily recognisable style will ensure that you get the coverage you truly deserve, and mastering Photoshop will ensure that this is the case.

On this page we'll be covering a selection of current styles that are hugely popular both creatively and commercially. Building on your Photoshop skills and then transferring what you've learnt into your work will allow you to develop a style that you can easily apply across your entire portfolio. The style you choose to work with will need to suit the theme of your images, so don't be afraid to experiment with some different effects but

also keep in mind what message you're trying to get across to the viewer.

The effects applied to your photos can be as wacky as you choose, but your images don't need to look overly Photoshopped to get great end results. Even small subtle tweaks like the high-key lighting effect can really make your portfolio stand out against the competition.

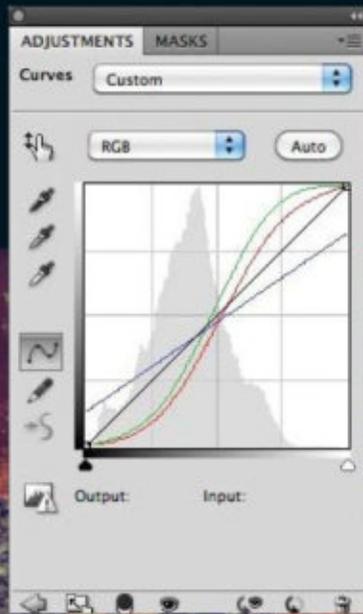
The key to finding a style is experimentation. Don't be too constrained, have fun and really explore what Photoshop has to offer. Combining Adjustment Layers and Layer Blend modes can produce stunning end results without hours spent staring at your computer screen. Get to grips with the few essential Photoshop functions explored here and you will realise how many amazing effects can be created quickly and easily - regardless of your image-editing skill level.

Creative cross-processing

Cross processing is a simple technique to master, involving increasing the image contrast and dramatically altering the colour balance.

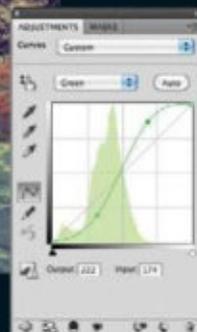
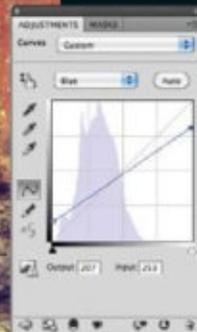
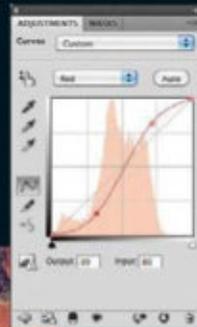
To do this we will use a Curves Adjustment Layer (Window>Adjustment>Curves). Click onto the RGB drop-down menu and choose Red. Click onto the line adding two anchor points.

Now move these to create an S shape. Repeat this for the Green channel then swap to the Blue channel. Don't add any anchor points; just move the top-end downwards. The bottom left anchor must point up to enhance the blues in the shadows. Play around with these settings. Once happy, set this layer's blend mode to Color.



« **CURVES ADJUSTMENT**
A simple curves adjustment for the red, green and blue channels work excellently to achieve the cross-processing effect

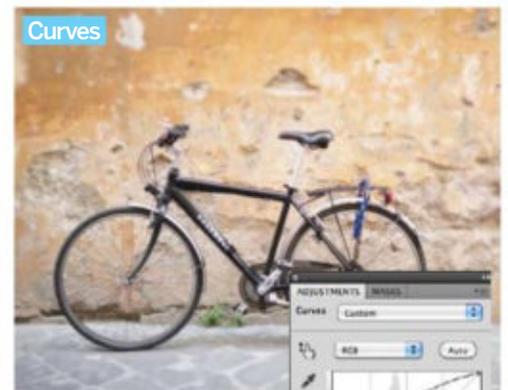
» **RED, GREEN AND BLUE**
For the red and green colour channels, move the curve into an S shape. For the blue channel, move the top end of the line downwards, as shown here



» BICYCLE BEFORE

One photo, four distinctly different styles. Experiment with them all and see what suits your style of working best. Who knows, you may discover a Photoshop trick that transforms your entire portfolio!

Boost highlights and add blur for a high-key effect



1 PLAY WITH HIGHLIGHTS

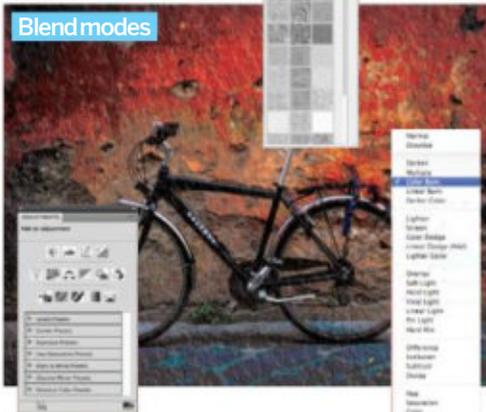
Creating high-key lighting effects is all about increasing the highlights in your photographs and enhancing the foreground.

Duplicate the Background layer, then hide the top layer. Click back onto the original background layer and add a subtle Gaussian Blur effect. Make both layers visible once more. Now add a Mask to the top layer. With a low-opacity, soft-edged brush, paint away the area around the foreground object showing the blurred underneath layer, adding a sense of depth. Now add a Curves Adjustment Layer (set to Lighter) in the top drop-down menu. If you want to strengthen the effect, continue to push the line upwards.



Add texture and Layer blends for more depth

2 MIX UP YOUR TEXTURES Creating striking images with depth is very simple. To begin, duplicate your Background Layer and go to the Layer Blend modes at the top of the Layers palette. Experiment with the options – Multiply and Vivid Light produce exceptional results, but for this image we have chosen to use Color Burn. Double-click on the top layer once the Blend Mode has been applied and check the Texture option from the Layer Styles dialog box. We used a Stucco texture. Then on top of the Layers we added a Curves Adjustment Layer, bringing back some highlights and enriching the texture effect.



Create clean and sleek advertising effects

Pen tool

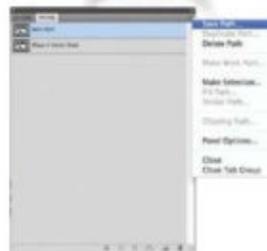


3 CUT AND POLISH

For this effect, first isolate the object and then place it onto a white backdrop with a natural shadow. Sharpen and then brighten with a Curves Adjustment Layer.

If you have a simple object to cut out, try the Quick Selection and Refine Edge tools. If, however, your object is more complex, then use the Pen tool.

Trace your object and save the Path. Make it an active selection and lift it from the Background layer. Make the Path an active selection once more, add a transparent layer underneath and fill the selection with black. Flip and position the layer and blur it. Finally use the Gradient tool on a Mask to soften.



Your client and you

Make sure the communication between you and your client is clear and consistent. If they want you to represent their product, make sure you know this product and its use inside out so you can represent it accurately. Also keep in mind how your client might want to use or share your image.

Q&A Standout style

Web: www.bigbouquet.co.uk

Bio: Emma Davenport works alongside her husband Ian, shooting weddings and portrait shoots on location. They work with Nikon D700s and a wealth of prime lenses. Big Bouquet is in its fifth year of business.

How important is Photoshop to you in your professional career and how much do you use it?

Because of the volume of shots I have to process on a weekly basis, and the quick turnaround time I need for my clients, I now do a lot of my basic image tweaking in Lightroom. However, when I turn on Lightroom for work, Photoshop is always powered up too. It's become second nature! For those feature shots, or images that need a little bit more editing work, Photoshop gives me a far more polished finish.

What tools and techniques do you rely upon the most?

I'm a big fan of Actions - both those I've created myself and have bought off the shelf. I've got my own subtle 'S Curve' treatments saved, which I use to give my images a boost.

How did you develop your recognisable style, or was it a natural progression?

The way I process my shots has changed a lot over the years and I owe this to some of the great, commercial Actions available. The Photoshop Actions I regularly use come from Totally Rad (gettotallyrad.com), Kubota Image Tools (kubotaimagetools.com) but my absolute favourite are the limited-edition Vintage Film sets from Red Leaf Boutique (redleafboutique.ca). I always use most of these Actions as primers though. The beauty of most of them is that they're layered so you can manually tweak them. It's important to know you can't get good results unless your straight-out-of-camera image is interesting and technically competent.

Did any other artists or Photographers inspire you to stylise your work?

There's such a friendly network of photographers out there for those looking to perfect their image editing. For example, Totally Rad has its own Recipe site where other photographers share their own work and give guidance on how they achieved their 'look' (gettotallyrad.com/recipes/).

“Photoshop is always powered up. It's become second nature”



Before

This image is pleasant, but lacks creativity and punch. However, by combining it with elements from other shots, we can transform the bland into the beautiful



“The key to seamless photo blending is to match up the noise, sharpness levels, the colour and the lighting tones using as many Adjustment Layers as necessary”

Composites

When you're out on a photoshoot, it's all too easy to make a mistake. Horizons may be wonky, lighting not set up efficiently, or the rule of thirds may be forgotten resulting in a distinctly average photo. But, all of this can be corrected afterwards in Photoshop. You can even merge and composite several photos together to get the ultimate seamless image for your portfolio.

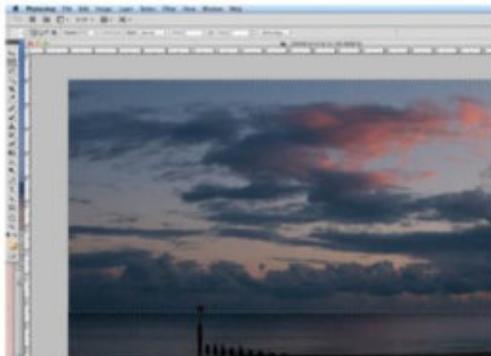
In the mini step-by-step below, we will show you how you can take the best parts of several photos and comp them together to achieve a brilliant, polished final image. No more dull skies, blurred foregrounds or poor conditions. We'll show you how to take specific sections within your photos and replace them with new and improved areas from another photo. Once the composition has been finalised, and the best parts of several photos pieced together, we'll show you how to blend the different layers, match up colour and lighting effects before flattening and saving the final image.

The key to seamless photo blending is to match up the noise and sharpness levels and the colour and lighting tones using as many Adjustment Layers as necessary. The procedure sounds complex but once you have mastered it, you will be producing fantastically creative compositions in no time. For the best results, start building up your image stock library. You never know when a sunny holiday sky or model shot can be used to fix or create a completely new scene.

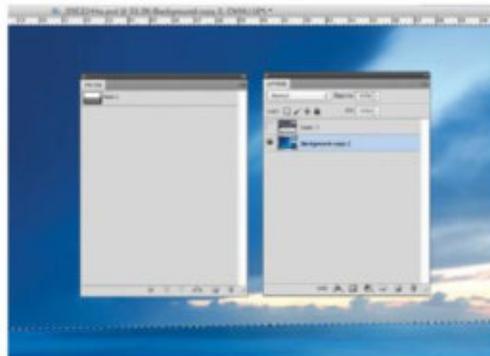
Add in some interest

You may not want to replace the entire sky, just add in a bit more interest. To do this, simply drag the new areas onto the canvas, position and alter the layer's blend modes to suit and then mask away the layers edges to blend the images together.

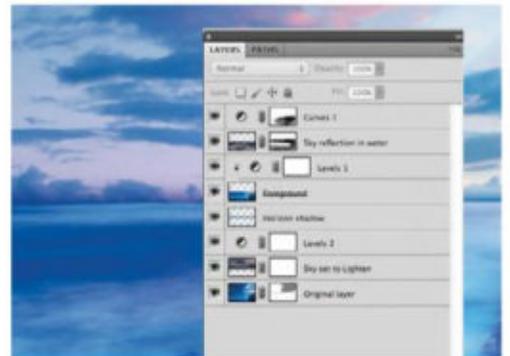
Swap in a sky with these simple steps



1 OPEN YOUR IMAGES With your main image selected, source all other elements. In this example we want to add in a new sky. Open all of the images into Photoshop and select the Rectangular Marquee tool, draw over the area of sky you want to place into your main shot.



2 CUT OUT AND POSITION Drag and drop the selection into your main image. Resize and then hide this layer for now. Use the Pen tool to trace along the horizon line and land area. Save the Path and then make it an active selection. Now lift the selection onto its own layer.



3 MATCH SETTINGS Make all layers visible and place a Levels Adjustment Layer on each one. Clip it so it only affects the layer below. Tweak the settings to match the two layers' colours and brightness. Finally match noise settings and add a Curves Adjustment to the top.

After
When combining images, ensure that the sharpness and noise levels match up. If they don't, try adding an overall effect on top of all the layers to match them up a bit more and make the blend less noticeable



While there is no doubt a lot to be said for settling down for a mammoth Photoshop session where you tinker and tweak an image into pristine glory, there are times when you just want a quick solution. And to be honest, a lot of common problems can be sorted out in a matter of minutes.

Over the next few pages we are going to be sharing some of the techniques we use when time, patience or concentration is in short supply. We'll be fixing obvious problems such as dull colour or soft edges in

addition to looking at creative solutions for pepping up an image that is lacking impact as it is. Sometimes a photo will only ever be okay no matter how bright its colours or how in focus it is. However, by giving it a sepia effect, for example, you are able to create an entirely different image that has the ability to really stand out.

Each of our fixes is detailed in three easy-to-follow steps, most with a short introduction on the process. So load up Photoshop or Elements and get started on pixel-perfect pictures now.

What you'll need...

Photoshop
Starting photo

We used...

Photoshop CS5

You could try...

Photoshop CS and above
Photoshop Elements

What you'll learn...

Remove colour casts
Fake depth of field
Apply a sepia tone
Improve colours and sharpness
Create better skies

“You can create entirely different images that have the ability to really stand out”

Correct colour casts

Pull a natural hue out of a poorly coloured picture

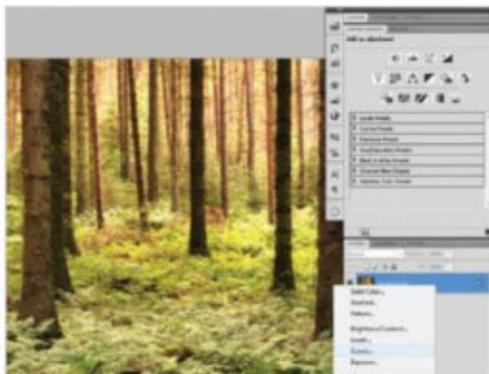
We may not notice the difference between, for example, the light generated by a fluorescent bulb and a halogen one, but photographs sure do, as images taken with different light sources will show great differences in colour.

Not accounting for this sensitivity can generate an image with a distinct tint. These off-colour photos are known as 'colour casts' and are usually the result of a photograph taken with an inaccurate white balance setting.

When out on a shoot, you can compensate for by this setting the white balance on the camera, or letting a sensor do it for you.

But do not fear if you have already snapped away without white balancing. Once you are back at your editing suite, you can correct this is to remap the white, grey or black points, as this allows the colours to settle back into the more expected values.

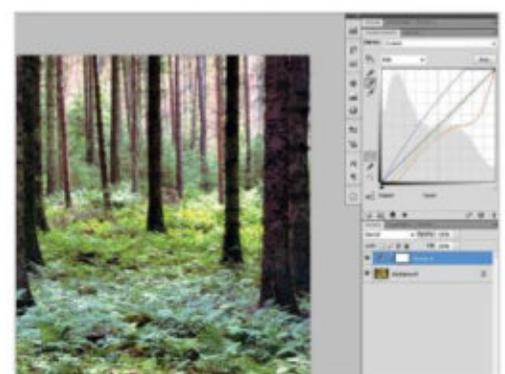
Follow the three simple steps below to easily remove all but the most drastic of colour casts and get the tones just right for your picture.



1 ADD ADJUSTMENT LAYERS Begin by adding a Curves adjustment layer. Look for the black-and-white circle icon at the foot of the Layers palette. Clicking on that icon activates a list of available adjustment layers, then simply select the Curves option from there.



2 BLACK AND WHITE POINTS To the left of the graph you'll see three eyedropper icons. Click the black eyedropper and then a part of your image that's completely black. Likewise, use the white eyedropper in the same way to sample the brightest pixels to set the white point.



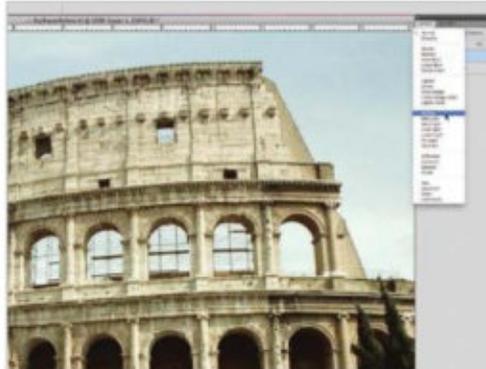
3 KILL THE COLOUR CAST Using the grey eyedropper is the most effective and most difficult step in the process. The goal is to sample a pixel that should be 50% grey. This may take a few attempts before getting a good setting. If the first click yields poor results, try another area.

Better, brighter skies

Chase away those grey days with this easy sky repair



1 SELECT A SKY Begin by using the Quick Selection tool to select your sky area. If the tool grabs areas of the image you don't want, hold down the Alt key and paint over the area. Depending on your version, the selection can be edited further by using the Refine Edge button.



2 NEW MASKED LAYER Press the Add new layer button at the foot of the Layers palette. The selection is converted into a mask for this layer. This will limit the effect to the sky, and having it on a new layer protects the original from alterations. Set this layer's blending mode to Overlay.



3 FADE AWAY THE GREY Set your Foreground colour to sky blue. Grab the Gradient tool and use the Foreground to Transparent preset. Set the mode to Linear, click the top of your canvas and drag down towards the horizon to create a blue gradient that fades away.

Boost colours and sharpness

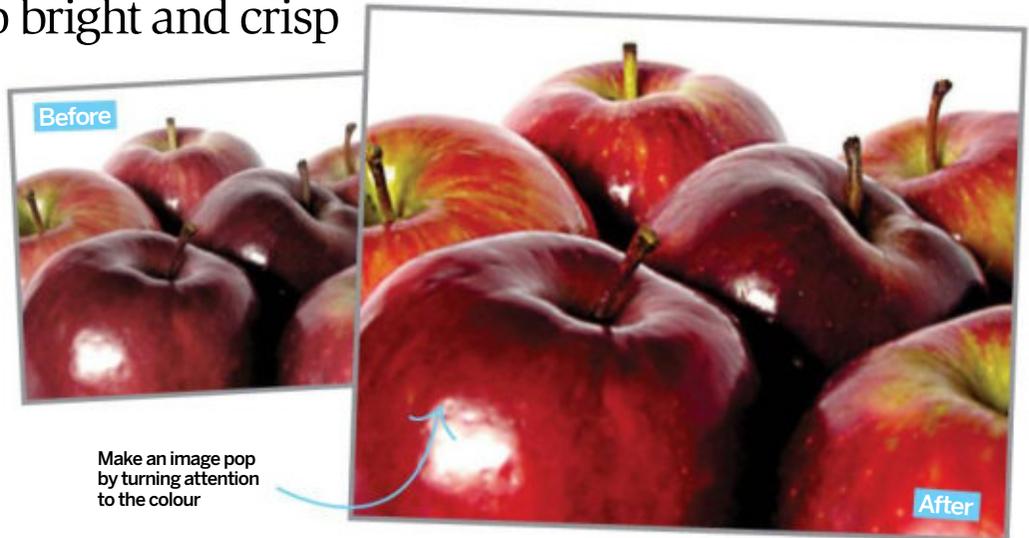
Go from dull and blurry to bright and crisp

Colour and detail are two elements that can make or break any photo. If one is missing, the other one better be something special to compensate. If both are weak, you know you are in trouble.

But all is not lost! The neat little tricks we show below can do wonders for a shot that is a little too dull or a bit soft. They can infuse the image with life and give it a pop that demands attention.

That being said, this is one editing trick that cannot perform miracles. If the photo is devoid of colour and detail, this won't help solve the problem. There has to be some basic elements to work with so bear this in mind when out on a shoot.

However, if your confident your image only needs a slight tweak to uncover its inner beauty, we encourage you to try this technique out.



Make an image pop by turning attention to the colour



1 PULL OUT THE DETAILS Create a copy of the Background layer to work with. Go to Filter>Sharpen>Unsharp Mask and work with the settings until you can see details from the image. In this example we used an Amount of 72%, Radius of 4.8 pixels and Threshold of 5 levels.



2 ADD VIBRANCE Add a Vibrance adjustment layer by clicking the Vibrance icon in the Adjustments palette. Pump up the Vibrance slider then increase the saturation. Use the layer mask that's automatically added to paint out the adjustment where it's not required.



3 FINAL POP Now create a composite layer on the top of the stack by pressing Cmd/Ctrl+Alt+Shift+E, and then on this new layer go to Filter>Other>High Pass. Enter a setting of 3 pixels. Change the layer's blending mode to Overlay to give a final touch of edge sharpening.

Rich sepia tones

This sepia trick allows for maximum control



1 ADD ADJUSTMENT LAYER Begin by adding a Levels adjustment layer. In the Histogram palette, pull the outer slider handles in to meet the edges of the chart. Take the midpoint slider and move it to the left to brighten the image a bit so that it will work when desaturated.



2 BLACK AND WHITE Next add a Black and White adjustment layer over the Levels adjustment. In the Adjustments palette, look for the drop-down menu near the top. These are presets used to create different black-and-white effects. Here we used the Neutral Density settings.



3 PHOTO FILTER Add a Photo Filter adjustment layer. From the filter drop-down, select the Sepia option. If the colourisation isn't strong enough to suit you, increase the Density slider to enhance the effect. Try the Preserve Luminosity checkmark both on and off.

Fake focal blur

Use a manufactured focal blur to make your subjects stand out

To draw attention to your subject you need to remove focus from the background.

Different lenses have different focal lengths that create different focal blurs. One way to enhance the focus of a photo's subject is to manufacture focal blur around it. This technique shows a precise method for doing just that.

A frequently overlooked feature of Photoshop is the Lens Blur filter, which not only does an outstanding job of simulating focal blurs, but can even be set to read a depth map that's been saved to a channel. This enables Photoshop to calculate a more accurate effect.

“A frequently overlooked feature of Photoshop is the Lens Blur”

Draw attention to your subjects with some deft blur

1 ISOLATE THE SUBJECT Create a copy of the background, then form a selection around the subject using the tool of your choice. We used the Pen tool because of its accuracy. Once done, press Cmd/Ctrl+J to copy the subject to its own layer, then turn off its visibility.

2 REMOVE THE SUBJECT On the copy layer, use the Clone Stamp tool to roughly remove the subject. Press Q to enter Quick Mask mode and use the Gradient tool to drag a white to black linear gradient down from the horizon to the subject. Press Q again and save the selection.

3 LENS BLUR Go to Filter>Blur>Lens Blur. In 'Depth Map', set the Source to the selection you saved in the previous step. If the blur effect appears backwards, check 'Invert'. Adjust the settings to get a suitable blur and press OK. Turn the visibility of the subject layer back on.

Get the best from NEF

Nikon's Capture NX 2 software offers powerful editing tools to help you easily get the most from your photographs

Metadata editor

This window allows you to add keywords and copyright information to your images, so that when you output your processed files to JPEG or TIFF format, this information is embedded into them

Folders + Browser

The Folders window is very helpful in aiding you to navigate to specific locations on your hard drive, while the Browser window allows you to see other images in the current folder

Photo Info

The most important component here is the Histogram, which provides you with an exact visual display of your image. Use it to keep an eye on how changes you make are affecting the photo

Control Points

One of the standout features of Capture NX 2 is the range of Control Points, which offer a powerful means of making precise, localised adjustments to your images

NX 2 Tools

Capture NX 2 features easy to use – and vital – editing tools like the Straighten Tool and Crop Tool, easily accessed at the top-right of the interface for you to open and use quickly

Edit List

On the right-hand side of the Capture NX interface, the Edit List window allows you to make and keep track of any adjustments made to your images, for a very useful overview



“Capture NX 2 software is designed to assist you in getting the best results from a NEF file as possible”

For the very best possible quality from your Nikon camera, you should try to shoot in the NEF format as often as possible. This is your Nikon camera's RAW format, and offers the very best quality that your camera's sensor is able to produce. The camera's processing algorithms do as little to the file as possible, meaning that key image ingredients like the white balance and exposure can still be adjusted in precise detail after the image has been captured and saved to the memory card.

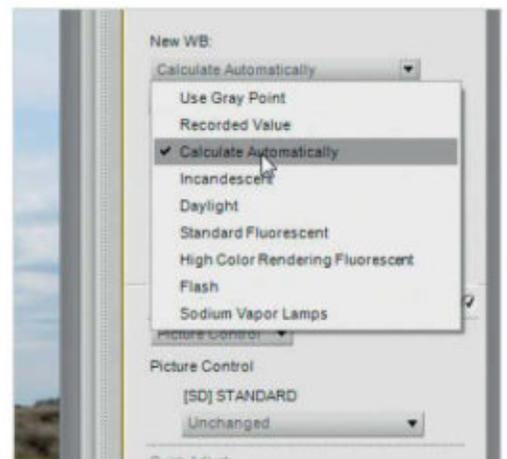
The only slight downside of shooting in RAW mode, as opposed to JPEG mode, is that the lack of processing conducted by the camera means that you need to process the files in special image editing software; they are not ready to use straight out of the camera like JPEG files are.

However, the control that you as a photographer can exert over the images when they have been captured in the RAW, or NEF, format is so extensive that vastly superior results can be achieved, and Nikon's Capture NX 2 software is designed to assist you in getting the very best results from a NEF file as possible.

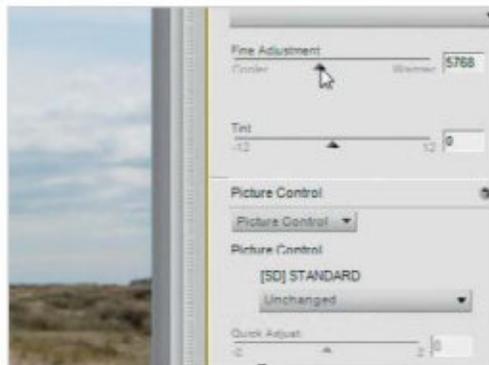
Of course you don't have to use Capture NX 2 to process your NEF files – any software designed to process RAW files will work, but Nikon's proprietary software offers a few key features that are very appealing. There are also many Nikon users who believe that Capture NX 2 handles the RAW data from a Nikon camera better than the third-party software, producing better colour definition and image clarity. Follow on with this tutorial and you'll learn how to get the best possible results for your images.

Quickly improve white balance and exposure

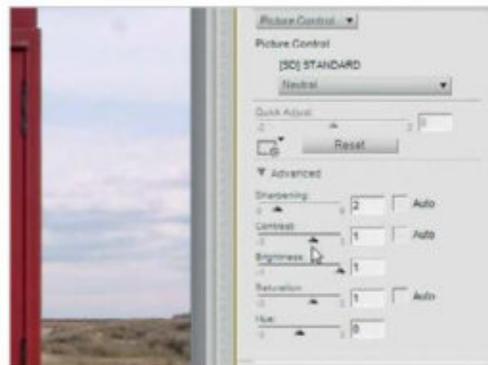
Use Nikon's Capture NX 2 software to override and correct the decisions that you and your camera made during your photo shoot



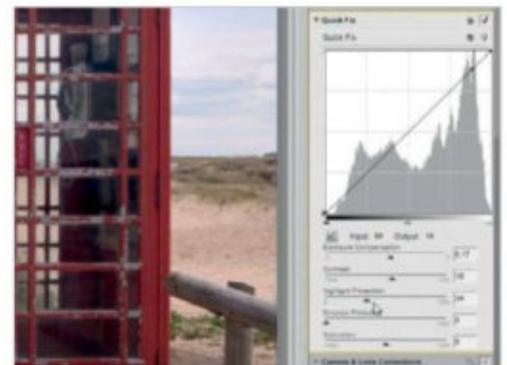
1 NEW WHITE BALANCE Start by going to the Camera Settings window at the right of the display. A good starting point when changing the white balance that was used at the time of capture is to click on Calculate Automatically in the drop-down menu under New WB.



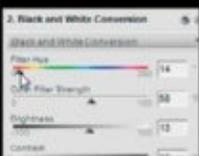
2 FINE ADJUSTMENT Capture NX 2 will generally do a good job of automatically calculating a new white balance but you can fine-tune the results using the Fine Adjustment slider. There's also a Tint slider that needs to be used carefully or you will introduce unpleasant colour casts.



3 ADVANCED PICTURE CONTROL Change the Picture Control in the menu to one of the presets available – Standard, Neutral, Vivid, Monochrome, Portrait and Landscape. Then use the Advanced sliders to adjust the Sharpening, Contrast, Brightness, Saturation and Hue.



4 QUICK FIX WINDOW Beneath the Camera Settings window at the right of screen is the Quick Fix window. Here you can deal with the image's exposure. Particularly useful are Highlight Protection and Shadow Protection allowing you to control and recover detail.



Pick a Filter Hue
For the majority of images you convert to black and white, you'll probably want to keep this slider fairly low. Try starting it at 50 and then move it either way to see what looks best. Ensure that the Color Filter Strength slider is reasonably high or you won't see the difference.



High Contrast
With black and white images, it's often best to aim for higher contrast rather than lower contrast. Therefore, put the Contrast slider up high to begin with and only lower it if you feel it really doesn't suit the image. Then adjust the Brightness slider to suit.



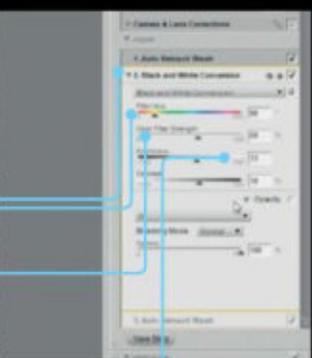
Add a tone
Click New Step at the right of the screen beneath the Black and White Conversion window and then go to Filter>Colorize. Choose a colour and set a low Opacity and then change the Blending Mode to Overlay. This allows you to add a subtle tone to your black and white image.

Go monochrome

“Use Nikon Capture NX 2 to convert your images into monochrome”



Filter menu
Go to the Filter menu at the top of the interface or press Cmd/Ctrl+Shift+B to access the Black and White Conversion feature



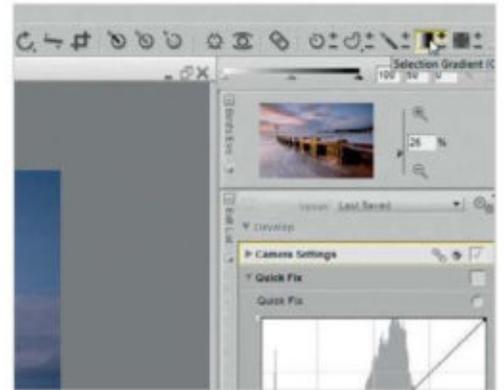
Color Filter Strength
This controls the strength of the Filter Hue slider. Setting it to 0% will cancel out the Filter Hue slider completely. Play around with it until you get the setting that looks right to you



Brightness and Contrast
Use these sliders to control how light or dark your black and white image is, and how much contrast it has

Add impact to skies

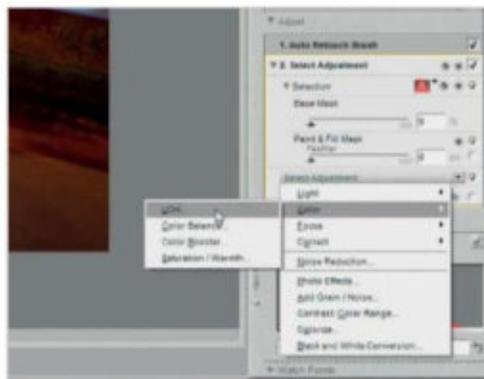
Use the Selection Gradient Tool in Capture NX to boost the drama in clouds, giving them a lot much more impact



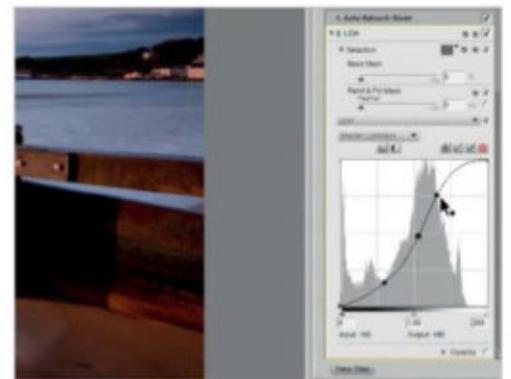
1 SELECTION GRADIENT TOOL The Selection Gradient Tool is among the group of tools located at the top-right of Capture NX's interface, and is the second icon from the right. You can also press G on the keyboard to access it quickly, though. Ensure that the + is checked rather than the -.



2 PLACE GRADIENT Simply click and drag a vertical line downwards to cover the sky. For the best results, go slightly beyond the point at which the sky ends. If you need to change the size of the gradient you can use the - symbol next to the Selection Gradient Tool at the top-right to do so.



3 SELECT ADJUSTMENT Click on Select Adjustment. From the menu that appears, you can now select the type of adjustment that you want to make. Nikon Capture NX 2 allows Lightness, Chroma and Hue (LCH) adjustments to be made, so you can adjust contrast without affecting colour tone.



4 USE THE CURVES A window will now appear allowing you to make your adjustments based on the selection. Make a gentle S curve in order to darken the sky and boost its contrast. Thanks to the capabilities of Capture NX 2, this won't affect the colour of the sky at all.



Make localised adjustments

Capture NX 2 allows for simple image editing with control points



1 COLOR CONTROL POINT The Color Control Point in Capture NX 2 can be found at the top-right of the interface, but you can also hold Shift+Cmd/Ctrl+A to access it directly from your keyboard. There are in fact various control points in NX 2, but the Color Control Point is particularly useful.



2 PLACE THE POINT Simply place the Color Control Point wherever you wish on the image. One of the best things about Control Points in Capture NX 2 is that you can move them and reposition them 'on the fly' as much as you like, allowing fast adjustment of Brightness, Contrast and Saturation.

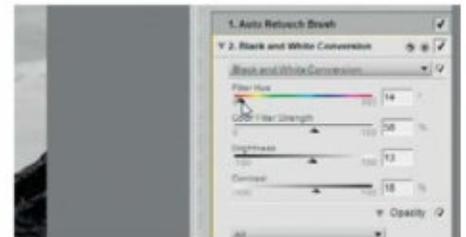


3 CONTROL POINT SIZE ADJUSTMENT The first of the four sliders available to you simply controls the size of the Control Point so that you can influence the range of pixels that it covers. However, the best option is often to simply add more Control Points to it instead, so bear this in mind.



4 MORE CONTROL POINTS Intrinsic to the flexibility of the Control Points is that you can place several of them on your image to affect different areas. Four Control Points here have made it possible to transform the appearance of the image with very little time or effort required.

The three best: Quick image editing tools in Capture NX



REMOVE DUST AND BLEMISHES

Thanks to the Auto Retouch Brush, you can very quickly deal with common image issues, including sensor dust and skin blemishes. Simply draw over the problem area, which will be indicated in red, and Capture NX 2 will intelligently fix the pixels.



STRAIGHTEN HORIZONS

Slightly uneven horizons are bound to happen from time to time, even if you are careful to use a tripod as much as possible. Fortunately, Capture NX 2 features a simple Straighten Tool. Use it to tell NX 2 where the horizon is and the software will make it straight for you.



CROP THE IMAGE

Many images benefit from a slight crop. You can choose between a Free Crop, allowing you to crop the image without restriction, or be guided by a Fixed Aspect Ratio crop using one of Capture NX 2's presets. Try repositioning your subject a third of the way across.

Add drama with Dodge and Burn

Discover how to dodge and burn in order to improve the contrast and atmosphere in your imagery

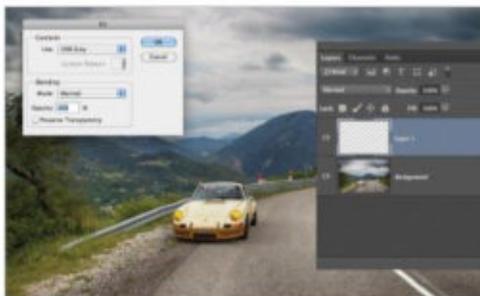
Those who were fortunate enough to be able to establish their own traditional darkroom at home will be very familiar with the concept of dodging and burning an image to make specific areas of the photo lighter and darker respectively. Generally speaking, this was often limited to black-and-white photography, but in the digital world photographers can apply the principles of dodging and burning to all their images. Photoshop makes this process of localised exposure control easy to carry out, although you are, somewhat puzzlingly, best off avoiding the use of the dedicated dodge and burn tools that are provided in the Tools palette. Instead, as with many techniques in Photoshop, you are advised to make use of Layers. This doesn't add too much complexity or time, but makes the results much easier to refine.



Before
Dramatic potential
This scene of a car on a mountain road with moody skies behind is ideal for a touch of Photoshop enhancement



After
Moody landscape
The scene looks a lot more dramatic and atmospheric. Using layers means that you have much greater control over the effect



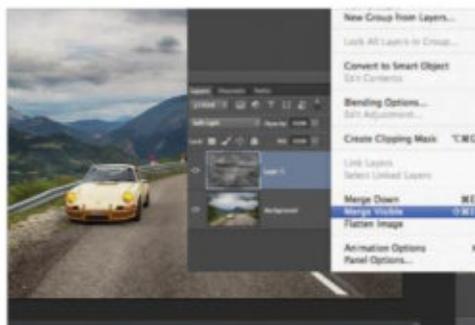
1 CREATE A NEW LAYER Start by going to the Camera Settings window at the right of the display. A good starting point when changing the white balance that was used at the time of capture is to click on Calculate Automatically in the drop-down menu under New WB.



2 WORK WITH THE BRUSH Change the blend mode of Layer 1 to Soft Light. You'll be using your Brush tool as a replacement for the standard dodge and burn tools. Use a low opacity so that the effect can be developed.



3 DODGE AND BURN With black as the foreground colour, darken (burn) the areas that you want to have a darker appearance, and use white to dodge areas that you want to look brighter.



4 MARGE VISIBLE LAYERS Hold the Opt/Alt key and go to the Layers palette menu. Select Merge Visible and a new composite layer will be created on top of your other layers. Set this to Multiply blend mode.



5 USE BLENDING OPTIONS Double-click to the right of the Layer 2 thumbnail to open Blending Options. Separate the This Layer highlight triangle by holding the Opt/Alt key, dragging the left half to 0 and right to 150.



6 MAKE A SELECTION Enhance the effect by making a selection of the main subject with the Marquee tool. Then go to Select>Refine Edge and feather the selection, then go to Select>Inverse.



7 BURN THE LEDGES Press Cmd/Ctrl+J to copy this to a new layer and set Multiply blend mode for Layer 2. Lower the Opacity of the layer if required in order to make the effect less pronounced.



8 ENHANCE THE COLOUR Create a Hue/Saturation adjustment layer in order to adjust the saturation of the effect. Changing the blend mode of this adjustment layer to Saturation is an optional final step.