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NO.1 FOR CANON DSLR USERS

Issue 127 • June 2017

PhotoPlus

THE **CANON** MAGAZINE



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Landscape photographer Mark Bauer on how to take great coastal photos

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**STUNNING
SEASCAPES**

Canon professional photographer Mark Bauer will teach you to take great seascapes – just like this beauty!
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- Our Video Disc has **THE VERY BEST DSLR TECHNIQUE & PHOTOSHOP VIDEO GUIDES**, which can also be viewed via our digital editions.
- We're proud to use **THE WORLD'S TOP CANON PHOTOGRAPHERS** and experts. Meet them on page 6.



Peter Travers
Editor

Welcome

As an island nation, we're surrounded by a vast array of beautiful coast, cliffs and beaches. In fact, there are over 7,000 miles of coastline to be explored in the United Kingdom – and that equals a lot of photo ops! To help you capture your local coastal spots at their best, this month we have Canon pro Mark Bauer sharing his top tips, supported with inspirational photography and insight. From seascapes to seaside harbour scenes, he's shot it all, starting from page 30.

Also inside, our Apprentice spends a day with a talented Canon pro on a flower farm learning how to take colourful close-ups (page 8). We speak to the obsessive Michael 'Nick' Nichols about his extraordinary 30-year career as a nature photojournalist at Magnum Photos then *National Geographic* magazine (page 66).

Our ever-inspiring Canon Skills section has more photo projects to try, from how to capture golden floral fields in your local countryside to taking super-fast liquid motion shots the easy way – outside in daylight! There are also projects on using space in your scenic compositions, and why not learn how to make a Sunprint? It all starts from page 45.

In Canon School (page 81), we explain the best ways to sell your photos as prints, discover all you ever need to know about AF points, and we answer more of your tremendously tricky techie questions. While in Gear, from page 97, we test eight standard zoom lens upgrades, with four for APS-C and four for full-frame DSLRs; and we test Tamron's amazing new 70-200mm f/2.8 telephoto zoom, plus find out which are the best roller bags and neck straps.

Peter



Subscribe & get a free monopod + become a Photoclub member! **Page 20**

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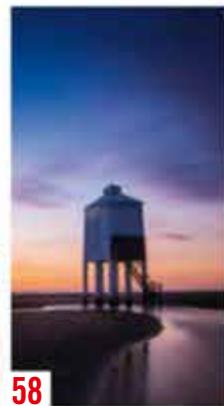
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Meet the team...

PhotoPlus

THE CANON MAGAZINE

Who we are, what we do, and our choice content from this issue...



Peter Travers
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"I feel more alive when by the sea, and love any excuse to shoot slow-motion seascapes – just like Mark Bauer's inspirational seaside scenes." **PAGE 30**



Adam Waring
Operations editor • 7D
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"My Canon is a real pain in the neck – add a hefty telephoto to your EOS and the supplied strap cuts into the skin. So I was relieved to see there are comfy alternatives." **PAGE 105**



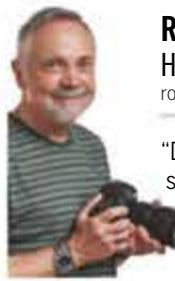
Lauren Scott
Staff writer • 7D Mark II
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"I love roaming around flower beds with my Canon camera, and it's even more enjoyable when there's an Apprentice and several farm pets in tow!" **PAGE 8**



Martin Parfitt
Art editor • 600D
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"The thought-provoking wildlife images of Michael 'Nick' Nichols are my favourite bit of this issue. Gorillas in the mist, or up a big mountain in this case." **PAGE 66**



Rod Lawton
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"Don't settle for a so-so kit lens! We spend most of our time shooting with a standard zoom, so this month we pick eight of the best kit lens upgrades!" **PAGE 106**



Matthew Richards
Technical writer • 760D
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"Proof that independent brand lenses can hold their own against Canon optics, the new Tamron 70-200mm G2 delivers on price as well as performance." **PAGE 102**

This issue's contributors...



Clare West
Clare shows our lucky

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Mark Bauer
Nothing beats eating fish and

chips, building sandcastles, and taking long-exposure seascapes... **PAGE 30**



David Noton
This issue David hopped

over to France in search of a classic rural scene in the Dordogne area. **PAGE 42**



James Paterson
Our resident space cadet

reveals how to use 'negative space' around focal points in scenic shots. **PAGE 58**



Michael Nichols
'Nick' explains how his

obsessive nature drove him to success as a wildlife photojournalist. **PAGE 66**



Henrik Spranz
Butterfly fan Henrik talks

through his kit and why it's vital when out in the field shooting insects. **PAGE 78**



Marcus Hawkins
Marcus proves why AF points

are awesome with another Canon School packed with priceless advice. **PAGE 86**



Brian Worley
Brian solves more of your

technical problems and queries with incredibly detailed answers. **PAGE 91**

Our contributors Mark Bauer, David Clark, Ollie Curtis, Peter Gray, Marcus Hawkins, David Noton, James Paterson, Jason 'Jedi' Parnell-Brookes, Henrik Spranz, Clare West, Brian Worley

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CANON PRO

NAME:

CLARE WEST

CAMERA:

CANON EOS 5D MK III

CLARE is a professional wedding photographer who is passionate about flowers. She runs flower photography courses at Green and Gorgeous, and has spent many years styling shoots there. She has also taught City & Guilds photography, so was perfectly qualified to train Faye in the art of floral photography. To see more of her stunning portfolio, head to www.clarewestphotography.co.uk

APPRENTICE

NAME:

FAYE VOWLES

CAMERA:

CANON EOS 1200D

FAYE is from Nuneaton in Warwickshire, and works as an assistant buyer for supermarket chain Aldi. She is relatively new to photography, but loves capturing the details of single flowers using her 70-300mm lens and wanted improve her technique, so came to *PhotoPlus* for help. She was thrilled to have the opportunity to learn under Clare's expert guidance.

FACTFILE

Green and Gorgeous

WHAT IS IT?

GREEN and Gorgeous is a flower farm and floral design studio, run by professional gardener Rachel Siegfried and her partner Ashley Pearson. The pair grow stunning flowers for weddings, which Rachel arranges in a wildly wonderful garden and hedgerow style.

WHERE IS IT?

THE farm is located in the Oxfordshire countryside, between Wallingford and Goring.

TRY A COURSE

FLOWER photography courses at Green and Gorgeous offer growers, florists and enthusiast photographers a unique opportunity to learn how to take better shots of their work in a naturally flower-filled environment. The next course is on Wednesday 16 August. As well as a full day of guidance from Clare, the day comes with a comprehensive handout and a home-cooked lunch and refreshments, using garden ingredients! For info, see www.greenandgorgeousflowers.co.uk

BLOSSOM AND BLOOM

This month's Apprentice learns to capture the botanic bliss of a flower farm in the beautiful Oxfordshire countryside

THE APPRENTICE

TECHNIQUE ASSESSMENT

Clare helped *PhotoPlus* Apprentice Faye to set up her camera for bloomin' lovely close-ups



MANUAL EXPOSURE MODE

“**FAYE** mentioned that she often feels rushed and so resorts to sticking the camera on Auto because it's safer. I wanted her to take her time and use her camera settings to take creative control. We started by setting the camera to Manual and going over the changes I was making, and it's clear that she has a good understanding of the basic settings and the exposure triangle. The widest aperture on Faye's lens was f/4, so we set it there first. We also took the ISO off Auto, and set it initially to 400.”



FINDING HER EYE

“**I FELT** the area Faye should concentrate on was composition and use of colour, as this is key to capturing stunning shots of flowers. I was very impressed with the speed at which she picked up the techniques I suggested, like shooting through the flowers to add depth and interest to the images. Very quickly she demonstrated she has a good eye.”

HOT SHOT #1

FAYE'S COMMENT



“This is a shot of plum blossom from the very start of the day, where Clare encouraged me to leave Auto exposure mode behind.”

We tried holding another branch right in front of the lens to create the 'misty' effect you see at the side of the shot. The pink colour of the blossom really contrasted beautifully with the green leaves.”

EXPERT INSIGHT

FIND THE BEST SPECIMENS

“**THE** subject we started shooting was plum blossom. There was plenty of room to manoeuvre around the tree, but Faye did have to stand further back with her 70-300mm lens to achieve good close-up magnification. In the harsh, overcast lighting, the first thing I suggested was walking around the subject to find a good specimen. If you can capture effective conditions and composition in-camera, it means much less time is wasted editing. I explained to Faye that it was important to look for attractive, whole flowers, and to really consider the background of a shot. Because macro is so tight, sometimes a tiny movement is enough to change the composition significantly. To begin with, I got Faye to focus on the centre third of the picture, but look for elements to draw the eye in.”





Lens	Sigma 70-300mm f/4-5.6 DG Macro
Exposure	1/400 sec, f/5.6, ISO400

PRO TIP**SELECT FOCUS POINTS**

“**FAYE** had been working with all her focus points active,” says Clare. “but this means the camera simply focuses on whatever’s closest to you. Selecting individual focus points provides much more control when photographing static flowers. Press the AF Point Selection button then use the Main dial to scroll through each AF point until the active one lies over the subject you’d like to focus on.”

**TOP GEAR #1****Macro lenses**

A MACRO lens is a vital tool if you want to get true life-size shots of flowers. Clare uses Tamron 90mm and 180mm macro lenses, which give full 1.0x magnification. Faye’s Sigma 70-300mm f/4-5.6 DG Macro telephoto zoom may have ‘Macro’ in its name, but in reality can only focus close enough for half-size (0.5x) magnification.

FAYE'S COMMENT



“This is one of the wider shots from the day, which I actually found the most challenging. Much of my previous flora photography has been based on close-ups or single flowers, so it was interesting to try and get an ‘overview’ shot. Clare let me borrow her 90mm macro lens, and I opened it all the way up to f/2.8. This gave me a shallow depth of field, and Clare showed me how to focus on a few blooms about a third of the way into the frame.”

HOT SHOT #2



Lens	Tamron SP 90mm f/2.8 Di Macro
Exposure	1/4000 sec, f/2.8, ISO400

EXPERT INSIGHT

GOING WIDE

“**WE MOVED** on to a ‘general’ view shot, so that I could show Faye how to set up wide-angle flower shots. This was something she hadn’t worked on previously, so it was important to go through composition and focusing. I got Faye to focus the 90mm lens at about a third of the way into the frame. I also explained that we didn’t want too much empty space above the flowers, as we wanted to immerse the viewer into the scene. While we were shooting, I encouraged Faye to keep reviewing her images and checking the exposure in Manual mode, just to ensure the white flowers weren’t being overexposed. By using an aperture of f/2.8, the specimens at the side became out of focus and provided a gorgeous visual frame.”



PRO TIP

USE WIDE APERTURES

“**WHEN** we moved into the polytunnel, I got Faye to have a go with my macro lens – not due to its super-close-up capability, but because the aperture can go all the way down to f/2.8 for a very shallow depth of field. Her lens at 300mm only went to f/5.6. I wanted to show how to get an ‘arty’ shot of the ranunculus, making use of the harmonious colours. By selecting a subject that was further away, Faye managed to isolate it from a blurred background.”



FAYE'S COMMENT



|| The idea here was to get as close up to the flower as possible, then filling the rest of the image with colour from the flowers

behind. This was shot in the polytunnel, which provided a wonderful diffused and bright lighting. I think the colour of the flower perfectly complements the colours in the background.

I was crouching right down in the **||** flowers to shoot at their level.

HOT SHOT #3

Lens	Sigma 70-300mm f/4-5.6 DG Macro
Exposure	1/800 sec, f/5.6, ISO400

THE APPRENTICE

HOT SHOT #4



FAYE'S COMMENT



|| Clare showed me how to use a tripod and two-second timer delay to ensure I got really sharp shots, with no shake on the camera.

This was the first time I had ever used a tripod, so Clare's tips for positioning it were really helpful. We also used Live View to ensure that the image was as sharp as possible, and that all of the detail in the middle of the flower could be seen. **||**

Lens	Tamron SP 90mm f/2.8 Di Macro
Exposure	1/100 sec, f/8, ISO400

TOP GEAR #2

Knee pads

YOU often have to get down and (literally) dirty to reach interesting perspectives. Clare uses knee pads to stay comfortable when she spends long days photographing at the farm. "I try to get down to the level of the flowers, especially with recognizable shapes, such as Tulips," she says.

**TOP TEN FLOWER PHOTOGRAPHY TIPS**

- 1 Manual exposure mode**
Use Manual exposure mode. The flowers aren't going anywhere, so you've got time to play around!
- 2 Wear neutral colours**
On a bright day, you'll notice colour casts on flowers if you're wearing particularly bright clothing. Opt for light or white garments.
- 3 Consider colour schemes**
Include both complementary and contrasting colours when composing your shots, for example red and pink flowers against a green background.
- 4 Manual focus**
Focus the lens manually, then rock back and forward to subtly change the point of focus.
- 5 Use the viewfinder**
Check in the corners of the frame for distracting elements or stray bits of plant. Live View is best reserved for working on a tripod.
- 6 Find an angle**
When you first approach a plant, move around it so that you can find the best angle to shoot from.
- 7 Check your exposure**
The camera's meter can easily be thrown off when exposing bright flowers against a dark background.
- 8 Compose first**
Find the composition you want by handholding the camera first, then move the tripod to match your vision. This process is much more freeing.
- 9 Look out for shadows**
When shooting up close, be aware that you may cast your shadow over subjects and need to allow more light in to the sensor.
- 10 Flower portraits**
Try to find a visual pathway to your main subject by including out-of-focus flowers in the foreground.

PRO TIP**SELF-TIMER**

"WHEN we'd set up the camera on a tripod, I got Faye to change the Drive mode to 2-sec Self-timer. This avoids motion blur caused by nudging the camera when firing the shutter, ensuring that the detailed flower remained sharp at the narrow aperture and slow shutter speed we were using."

**EXPERT INSIGHT****USING LIVE VIEW**

"FOR these anemones, we wanted as much of the flower to be in focus as possible. I first got Faye to narrow the aperture down to f/8, which gave us a shutter of around 1/100 sec. It was therefore important to use a tripod so that the shot wasn't blurred, and I showed her how to look for a composition and set up the tripod legs to match this. Next, I switched Faye's lens to Manual focus, and encouraged her to use Live View to zoom in on the stamen of the subject by rotating the focus ring until this part of the flower was perfectly sharp."

**TOP GEAR #3**

Quick-release plate

"I ONLY use a tripod when I want to use a narrow aperture for flower portraits as they can be a bit cumbersome and slow me down," Clare says. "My Giottos MH 5001 three-way pan head and quick-release plate makes it easy to compose shots off the tripod first, before putting it into position and locking the camera in place."



THE APPRENTICE



EXPERT INSIGHT

STILL-LIFE SETUPS

WHEN Faye photographed this Icelandic poppy, Clare suggested she shoot it in a low-key style: "As we were shooting inside, with the main light source as daylight coming through a barn door, we could take total control of the light. I suggested Faye use reflectors in their black zip-up covers as 'flags', to prevent light striking where we didn't want it to, and use smaller reflectors to bounce light selectively onto your subject. We used the gold side here to add a warm glow, but the silver or white side will suit flowers with cooler tones."

HOT SHOT #5

Lens	Tamron SP AF 180mm f/3.5 Di LD (IF) Macro
Exposure	1/200 sec, f/4, ISO400



CLARE SAYS IT WITH FLOWERS

Our pro botanical photographer shares a bunch of her favourite floral shots with us . . .



A WIDE VIEW

"**I HAVE** a habit of getting engrossed with close-ups of flowers so try to force myself to take wider views, like this. A footpath between the flower beds in this shot helps to add depth, making the foreground layer even more prominent."



BEAUTIFUL BOUQUETS

"**THIS** 'Dutch Masters' look is very popular at the moment. I placed the bouquet on a crate with the open door to the left and a piece of plywood as the backdrop. ISO1600 was used to boost the exposure in the low light conditions."



EVENING GLOW

"**THE** golden hour is my favourite time of day; the quality of the light is amazing, producing highly saturated colours and adding drama. I used a wide aperture of f/2.8 to generate a dreamy out-of-focus look."



FAYE'S COMMENT



|| This was one of my favourite flowers to photograph. We shot it in a barn and set up the Icelandic Poppy in a vase on crates, with black

backgrounds to the back and side and used a reflector to bounce light in to highlight the bright red of the poppy. This was shot on Clare's 180mm lens, meaning that I could sit further away to capture the whole of the flower in the frame. **||**



TOP GEAR #4

Paintbrush

"USE a paintbrush to gently brush off any debris from flowers, as otherwise this will show up when you're shooting them so close. You can also use a brush to even out the petals, or if you need a reference aid with manual focus," Clare reveals.



PRO TIP

AUTO WHITE BALANCE

"I RECOMMENDED that Faye keep the white balance in Auto mode, because when you shoot in Raw it's easy to tweak the white balance afterwards," Clare says. "You can change the colour balance in Lightroom or Photoshop, but Canon DSLRs generally do a fantastic job of rendering the flower colours accurately."





TOP GEAR #5

Mini reflector

REFLECTORS come in very handy when you want to throw light back onto a flower and fill in shadowed areas. Small versions, like this one, are light to carry, and can be packed away in a camera bag. "The gold side of this reflector had a warming effect when we were photographing the red poppy," Clare says.



FAYE'S COMMENT



What an amazing day I had photographing flowers – and improving my camera skills! I learnt so much from Clare and she gave me plenty of food for thought. This was shot in the polytunnel. The colours are stunning, which helped to create this beautiful close-up image. It is actually a hybrid flower – half of it is yellow and half is orange. The other flowers in the tunnel were used in the fore- and background to help create a sharp image of the flower in focus.

CLARE'S VERDICT



I love this shot of Faye's! The harmonious colours are just beautiful and she's taken into account that it's best to try and eliminate the majority of the green (the contrasting colour) except where you want the viewer's eye to be drawn to. This particular bloom is two-tone; an unusual anomaly that Faye has used to great effect as it helps to make the bloom stand out, almost giving it a backlit appearance. Placing the other blooms in the foreground eliminates distracting details like stems and leaves. She should be very pleased with this – and it's been taken in Manual mode, too!

SHOT OF THE DAY!



BE OUR NEXT APPRENTICE

Do you need some help to take your Canon photography to the next level? Let us know what you'd like help with and we could pair you up with a top pro for the day! Email photoplus@futurenet.com with 'PhotoPlus Apprentice' as the subject, and include your phone number and address.

Lens	Tamron SP 90mm f/2.8 Di Macro
Exposure	1/4000 sec, f/2.8, ISO400

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INSPIRATIONS

STUNNING IMAGERY FROM THE WORLD OF CANON PHOTOGRAPHY





01 TOPPING & TAILING BY KARAN GOKANI
Karan's use of a bird's eye perspective is what gives the shot intrigue. It was highly commended in the Bring Home the Harvest category. "This photograph was taken early one morning at a vegetable market in Colombo, Sri Lanka," says Karan. "Wholesalers bring in their produce, which they sort, sift and prepare for retailers and stall owners. Here, one such seller tops and tails his carrots for sale."

Lens Canon EF 35mm f/1.4L II USM

Exposure 1/500 sec, f/4.5, ISO800

INSPIRATIONS



02

02 TUSCAN BARRELS BY DEBBIE GIBSON

This image won in the Errazuriz Wine Photographer of the Year category. It shows a view from the cellar door: barrels of wine being carefully tended to, within a traditional vineyard in the heart of Tuscany.

Lens Canon EF-S 18-55mm f/3.5-5.6 IS II

Exposure 1/15 sec, f/4, ISO3200

03 WHEN IN ROME BY SOREN GAMMELMARK

"When in Rome, eat as the Romans do," Soren says. "When the artichokes are in season, they are highly loved by all Romans. Carlo lives just outside Rome and is famous for his artichokes. Freshly harvested, he sells them at his little street stand."

Lens Canon EF 24-70mm f/2.8L II USM

Exposure 1/400 sec, f/5.6, ISO100

04 ANISE BY SEBASTIAN DUBOIS-DIDCOCK

Sebastian's simple image featured in the Cream of the Crop category of the competition. It shows Anise seeds being weighed on a traditional scale, surrounded by smoke. The simple colour scheme and choice of backdrop lends a rustic and traditional feel to the shot. Shot at 70mm, using a narrow aperture of f/16 has made sure all the Anise seeds are sharp.

Lens Canon EF 24-70mm f/2.8L USM

Exposure 1/160 sec, f/16, ISO100



03



This gallery celebrates some of the Canon finalists from the 2017 Pink Lady Food Photographer of the Year competition. The awards celebrate the very best in food photography from around the world, and the wide variety of categories cover the full cultural range of food in society. www.pinkladyfoodphotographeroftheyear.com



INSPIRATIONS





06



07

05 CHOCOLATE GANACHE BY GREG ELMS
 Greg's use of a macro lens gets us closer to this decadent subject. "Cooled to the perfect temperature and quickly spread with a cooking spatula by leading chocolatier, Kirsten Tibballs, I had only moments to capture this image of softened chocolate ganache," he says.

Lens Canon EF 100mm f/2.8 Macro USM

Exposure 1/3 sec, f/11, ISO100

06 WINTER BARBECUE BY MARK BENHAM
 "A cold winter's evening warmed up by a great BBQ around a real fire. Huddled up, family and friends cook dough and marshmallows on sticks, and despite some rain, this proved to be great fun, a warm glow evident on the faces of everyone," photographer Mark says.

Lens Canon EF 16-35mm f/4L IS USM

Exposure 1/30 sec, f/5, ISO10,000

07 COLLECTING EGGS BY EMMA BROWN
 "Every two weeks, in the refugee camps near Tindouf in Algeria, women collect egg rations distributed by the Sahrawi Red Crescent," Emma says. "The majority of Sahrawis are refugees today. In one of the harshest desert environments in the world, their homeland of Western Sahara is the last colony in Africa and the site of a protracted territorial dispute."

Lens Canon EF 24-105mm f/4L IS USM

Exposure 1/500 sec, f/4, ISO320



This gallery celebrates some of the Canon finalists from the 2017 Pink Lady Food Photographer of the Year competition. The awards celebrate the very best in food photography from around the world, and the wide variety of categories cover the full cultural range of food in society. www.pinkladyfoodphotographeroftheyear.com

INSPIRATIONS

08 PINK LADY APPLE A DAY BY STACY GRANT

"I created this apple rose tart made with Pink Lady apples in a heart-shaped tin to reflect the Pink Lady logo." Stacey's simple but inviting image won third place in the Pink Lady Apple a Day category, and was shot on her Canon EOS 5D Mark II.

Lens Canon EF 24-70mm f/2.8L USM

Exposure 1/50 sec, f/3.2, ISO320



This gallery celebrates some of the Canon finalists from the 2017 Pink Lady Food Photographer of the Year competition. The awards celebrate the very best in food photography from around the world, and the wide variety of categories cover the full cultural range of food in society. www.pinkladyfoodphotographeroftheyear.com



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STUNNING SEASCAPES

*Landscape photographer **Mark Bauer** shows you how to capture the drama and beauty of Britain's ever changing coastline*



We photographers are fascinated by the coast. Perhaps it's because, as an island nation, we are naturally drawn to the sea, or perhaps it's because, with different tides and weather, coastal locations look different every time you visit them. There is also a huge variety of subject matter: cliff-top views, sandy beaches, rocky coves and coastal architecture, such as lighthouses, piers and groynes. The coast

is beautiful and dramatic, but conveying that sense of beauty and drama isn't always straightforward. It can be a harsh environment, which has implications for protecting both yourself and your Canon kit. There are technical challenges, too – seascapes are often very contrasty, containing an incredibly wide tonal range from deep shadows to bright highlights, which can cause real problems with exposure. Follow these tips to ensure you come back from your day beside the seaside with results you can be proud of.

Canon professional



MARK is originally from Newbury, and is now based in Swanage in Dorset and loves shooting seascapes. He took up photography in the 1980s, and has been a professional landscape photographer for ten years. To see Mark's fantastic portfolio of coastal and landscape images, and for details of his inspirational photography workshops, visit: www.markbauerphotography.com

20
PRO TIPS FOR
BETTER SEASIDE
AND COASTAL
PHOTOS

GETTING STARTED

Plan your trip to the coast and make sure you're kitted out correctly

01 DSLR settings

FIRST things first, setting up your Canon EOS DSLR. You'll need to take a certain amount of control when shooting seascapes. Set Aperture Priority (Av) or Manual mode, so that you, rather than the camera, choose the aperture and are therefore in control of depth of field to ensure the whole scene is sharp. Auto white balance usually works well, but at sunset and sunrise, using the Cloudy setting can enhance the natural warmth of the light for a more colourful shot.



Controlling depth of field is vital for seascapes, so set up your Canon correctly



02 Kit tips

A STURDY tripod and head will help keep things steady in difficult conditions, as well as allowing you to fine-tune compositions by making small adjustments. Graduated filters are useful for toning down bright skies and neutral density filters let you extend exposure times for creative effect. Polarizers reduce surface glare and can enhance reflections. A rain cover will protect your camera from spray and splashes.

Live View is especially useful for focusing accurately in low-light scenes



03 Use Live View

LIVE VIEW makes composition easier and allows you to preview effects such as picture styles, white balance and exposure changes. You can check exposure by using the live histogram and ensure your horizon is straight with the electronic level. You can set a focal point almost anywhere in the scene, and the 5x and 10x magnifier makes accurate manual focus simple.



The 10x magnifier in Live View is an excellent aid to accurate manual focusing

04 Planning

YOU'LL need to plan carefully to get the best results. It's important to know what the tide is doing – sandy beaches generally look best on a low falling tide, as this reveals lots of clean sand, whereas rocky beaches look best on a mid-tide, with waves washing around the rocks. Knowing whether the tide is rising or falling is also important for safety. There are lots of good tide apps, including Tides Planner and AyeTides, while The Photographer's Ephemeris will show when the best time of day and year is for your chosen location.

Knowing the tide height and the direction of sunset or sunrise will help you capture a location at its best

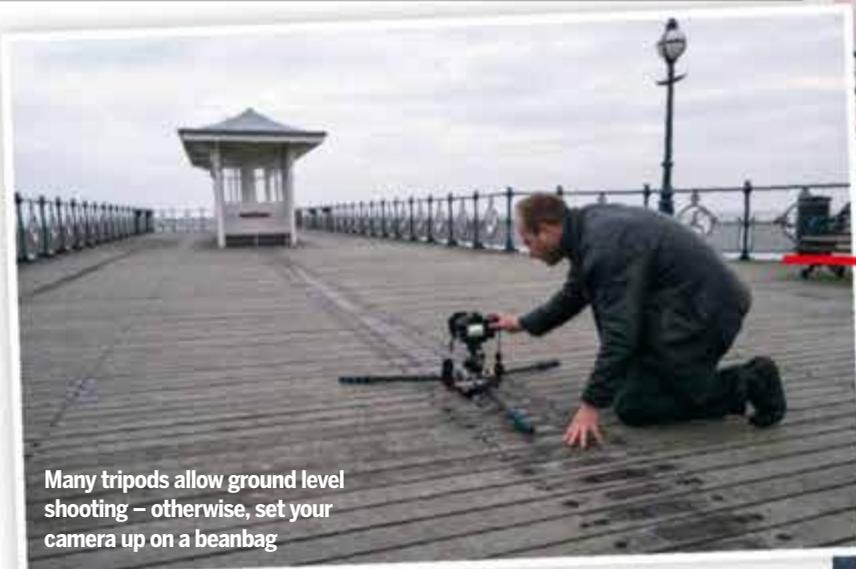
COMPOSITION

How framing your scene can make or break a shot



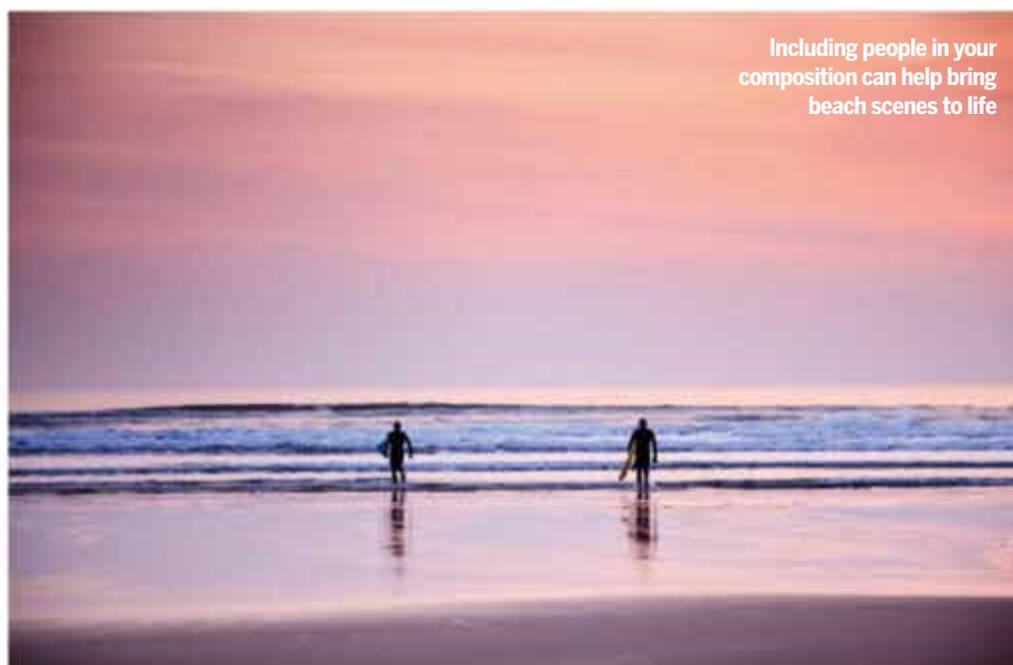
05 Look for leading lines

COMPOSITION is about balance, harmony and guiding the eye through the frame. One very powerful way of guiding the eye is to use 'leading lines'. The eye will naturally follow any lines created by waves, rocks, cliffs edges and so on. You can exploit this by trying to organize the frame in such a way that lines point towards the main subject or focal point. The result is a strong, structured composition. Lines coming in from the corners are also useful, as these direct attention into the composition.



06 Shoot from a low viewpoint

FOR A more dramatic perspective, shoot from a low viewpoint – right down at ground level, if possible. This puts a lot of emphasis on the foreground and works especially well with seascapes, as it makes the most of any texture in the sand or reflection. Some tripods allow you to set up at ground level; if yours doesn't, a beanbag can be useful.



07 Include people

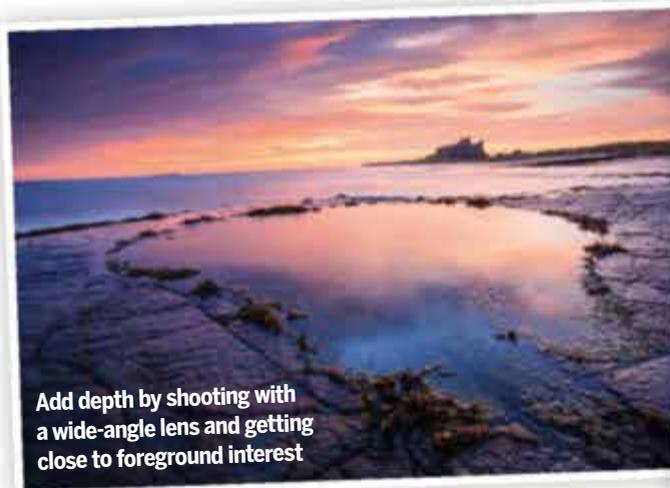
MOST landscape photographers go to great lengths to ensure that there are no people in their photographs, creating the illusion of isolation and remoteness. However, the seaside is one place where people may actually benefit the shot, as we associate beaches with people enjoying themselves, whether it's families having fun or people engaged in activities such as surfing, kayaking or swimming.



A low viewpoint dramatically emphasizes the foreground

08 Foreground interest

FOREGROUND interest is essential in landscapes and seascapes for providing a sense of perspective and depth. By getting close with a wide-angle lens, the foreground looms large in the frame with the background stretching out behind it, enhancing the effects of linear perspective. With objects close to the camera, you'll need to maximize depth of field, so choose a narrow aperture, such as $f/16$, and focus about a third of the way into the scene.



Add depth by shooting with a wide-angle lens and getting close to foreground interest



WORKING WITH LIGHT

You'll need to get up early or stay out late for the best shots

09 Dealing with high contrast

MANY coastal scenes and seascape scenes are naturally high in contrast, with the sun reflecting off the sea and wet rocks. At sunrise and sunset, the tonal range can be extreme, with very bright skies and dark foregrounds. In these situations, your camera will usually either overexpose the sky or underexpose the land. There are two solutions – you can bracket shots and then blend them together on a computer to produce a single image containing the full tonal range, or you can use a graduated ND filter to darken the sky, thus compressing the tonal range.



Two shots were combined in Photoshop to create this final image. One exposed for the sky and one for the foreground



10 Shoot in the Golden Hours

THE PRIME times for shooting on the coast are the 'golden hours' – 30 minutes either side of sunrise and sunset. Just before sunset and just after sunrise, the sun is low in the sky, bathing the landscape in a golden glow. Shooting at these times with side lighting also has the effect of revealing form and texture as the low, warm light casts long, modelling shadows over the land.

11 Wait for the best light

ALL landscape photography requires patience and this is especially true of seascapes and coastal scenes as the right light can transform a composition, adding colour and depth to a scene. It's worth arriving on location early, so that you can get set up and compose your shot without rushing and making mistakes. If shooting late in the day, make sure you don't pack up and go home too early – the best colour will often radiate across the sky 20 minutes or more after the sun has dipped below the horizon.



Be patient and be prepared to wait for the right light as this can transform your scene

12 Shoot reflections

REFLECTIONS will literally double the impact of your compositions and you can find them everywhere by the sea – in rock pools, in wet sand and even the ocean itself when it's calm. To make the most of them, get in close and fill the frame. Experiment with camera height – often a low viewpoint will give them emphasis – and they can be enhanced with the use of a polarizing filter.



Take a low viewpoint and get in close to make the most of reflections in rock pools

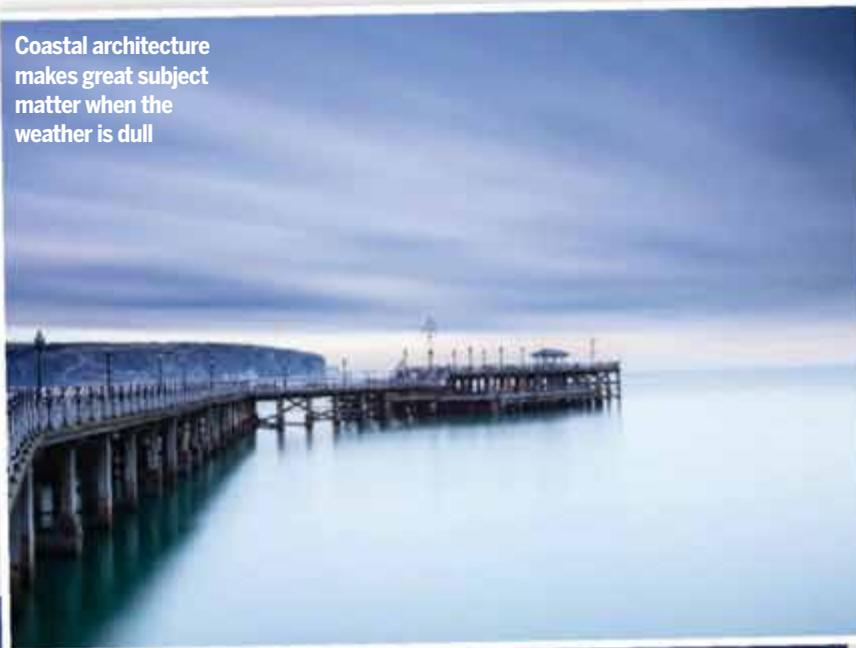
COASTAL ARCHITECTURE

Include man-made structures in your seascapes to act as focal points

13 Shoot in dull weather

SEASCAPES and coastal scenes often look their best early or late in the day, with golden light raking across the scene. Unfortunately, however, we can't guarantee the weather. On dull days, architectural subjects, such as lighthouses and piers, make great subjects. Set a low colour temperature to enhance the naturally blue tones of the dull light and make the most of any textured cloud by including plenty of sky in the composition.

Coastal architecture makes great subject matter when the weather is dull



Piers lend themselves naturally to symmetrical compositions



14 Symmetry

WE SPEND so much time talking about the rule of thirds that it's easy to overlook how dynamic symmetrical compositions can be. You need the right subject, of course, and piers are ideal. Use a wide-angle lens to enhance the converging lines of the sides of the pier as they lead to a vanishing point in the distance. Having a clear focal point in the background will strengthen the composition as it gives the eye somewhere to rest, rather than taking it straight through the scene.

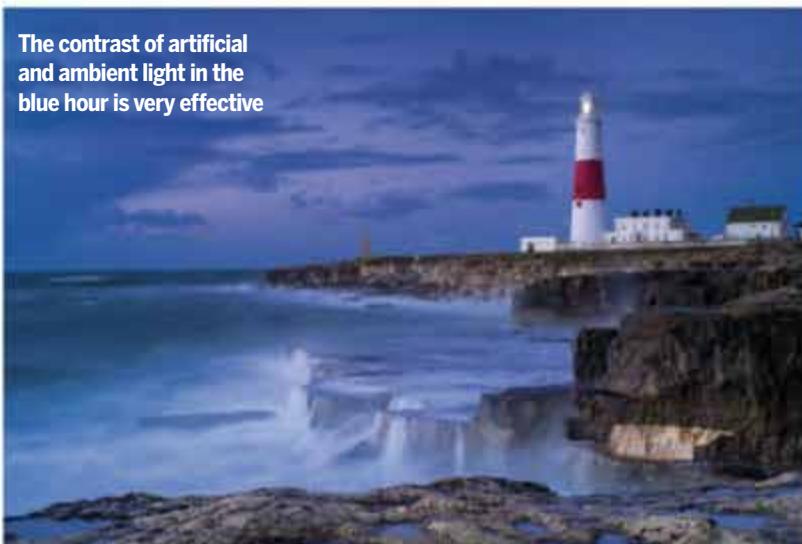
15 Think mono

SHOTS of structures such as piers and lighthouses look great when converted to black and white. Monochrome conversions in Photoshop are one way of dealing with flat lighting conditions, but this shouldn't be the only time you think about mono. Any scene where there is plenty of texture and a good range of tones will work well. If you're unsure of whether a shot will look good in black and white, take a test picture using the Monochrome picture style in camera.



Weather-beaten groynes are wonderful subjects for black-and-white conversions

The contrast of artificial and ambient light in the blue hour is very effective



16 Shoot in the blue hour

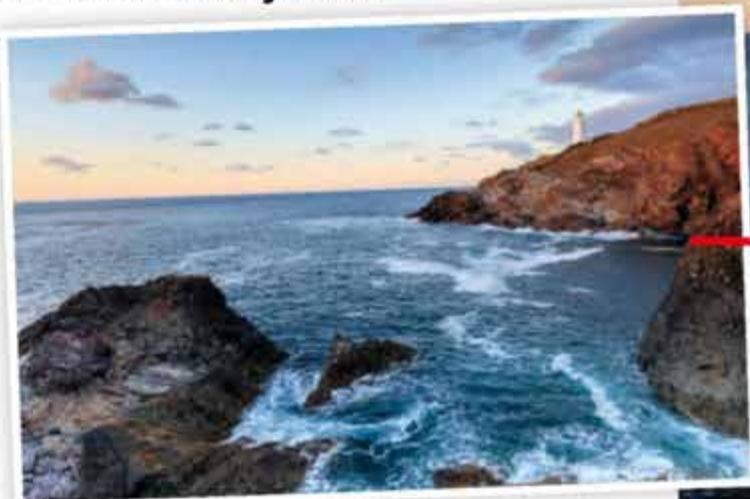
MOST landscape photographers are familiar with shooting in the golden hours, but if you get on location a little earlier in the morning or stay a little later in the evening, you can take advantage of the 'blue hour' light – the period of twilight when the landscape is infused with naturally cool, blue tones. Piers and lighthouses are particularly suited to this time of day, as the warmth of their artificial lighting makes a very photogenic contrast to the blue hues of the ambient light.

LONG EXPOSURES

Slow your shutter to tame the seas for that classic creamy effect

17 Remote release

FOR EXPOSURES of over 30 seconds, you'll need to use Bulb mode and lock the shutter open, but simply holding down the shutter button on the camera will almost certainly result in camera shake. The answer is to use a remote release. There are both corded and wireless models available, but for coastal work, wireless remotes are arguably better as you do not have to leave connection ports open – if salt water penetrates these, it could cause damage.



18 Calculating long exposures

TO USE an ND filter, first take a test exposure without the filter to establish the 'base' exposure. Double this for each stop of filter density, so with a 10-stop filter, double the base exposure 10 times. Thus, a base exposure of 1/30 sec becomes 32 secs (there are smartphone apps that can calculate this). Then fit the filter and, in Bulb mode, lock your shutter open for the calculated time.

19 Keep it simple

THE BEST compositions with long exposures are often very simple – even minimalist. Use plenty of negative space around your chosen subject – this gives plenty of room for the moving elements in the scene and creates a stronger contrast with a static main subject. A single object, with lots of empty space around it, is often enough.

The simplest compositions are often the most effective when it comes to long exposure seascapes





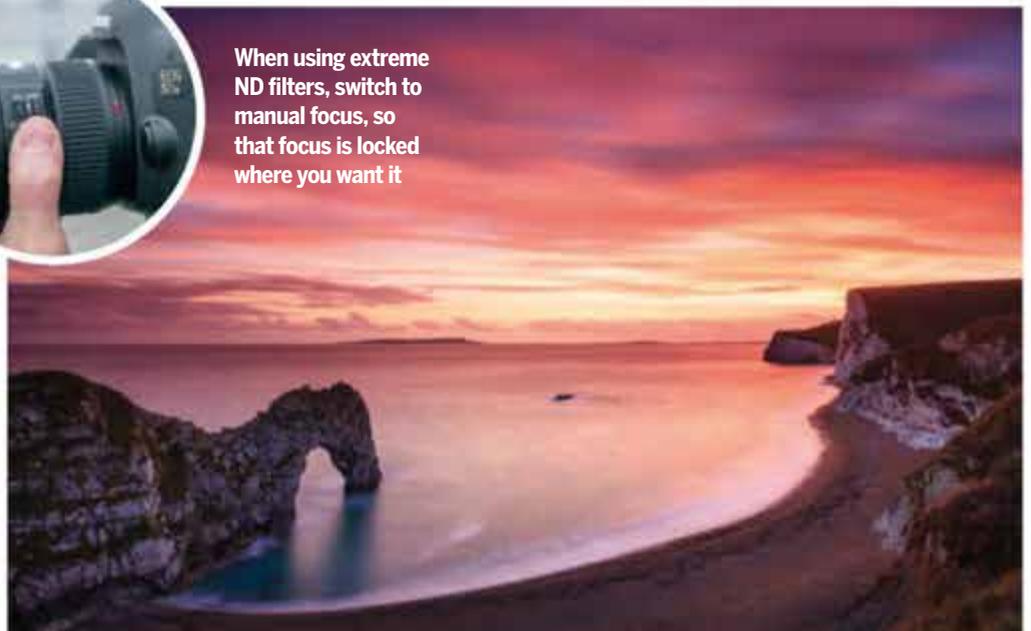
Take a test shot without the ND filter to find out the correct base exposure, then calculate what the filtered exposure should be

20 Use manual focus



When using extreme ND filters, switch to manual focus, so that focus is locked where you want it

IF YOU'RE shooting in very low light, or with an extreme ND filter such as the LEE Big Stopper, it will be too dark for either autofocus or manual focus. Therefore, you should focus before fitting any filters, and make sure the camera is switched to manual focus, so that it does not attempt (and then fail) to focus when you press the shutter. 📷



Pardon my French

Pays de Bergerac, Périgord, Dordogne, Aquitaine, France. 04:20 local time. 14 June 2014

A couple of weeks in the Aquitaine region of southwest France and David Noton feels like a native, but try telling that to the lady with the nice tomatoes...

04:20 On the road to Molières before dawn, bleary eyed, unshaven and dishevelled, a deer darts out from the verge into the glare of my headlights. I test my anti-lock braking to the full; it works, thankfully. A collision would have ruined both our days. Concentrate Noton. Now, which side of the road do I need to drive on again?

04:50 I'm setting up with the big Canon EF 200-400mm f/4L IS USM Extender 1.4x lens on the Gitzo. From here on a roadside embankment I can see the village through a narrow gap in the trees. If I move either up or down, right or left, the tight cluster of honey-coloured buildings are lost. In the field below are some freshly rolled hay bales; with a bit of careful manoeuvring I can just about include them in my frame.

A focal length of 500mm allows me to isolate all else from the image area, concentrating just on the *bastide* village with the foreshortened perspective of the ultra-long lens working to my advantage.

The soft early light is just starting to paint the *paysage* from the northeast, sidelighting the scene as I perceived it would when we stumbled across this view on last week's hike. I switch on Live View, check all my settings and make my first exposure. As an alternative to mirror lock-up Live View is very handy for avoiding mirror slap, that unperceivable vibration that can rob images of perfect clarity, especially with long lenses.

What's that speck in the field? It's a fox. Can I capture him in my shot? Maybe, but with a relatively slow shutter speed of 1/4 sec I need him to be still. Basil scampers across the field, and then stops just in the right place, as if posing for my lens. The shutter clicks, job done. Cue euphoria; it could be the shot that encapsulates the trip in a nutshell. We've still another week

in the region, but our decision to stay on and really burrow into the character of this corner of Aquitaine is paying off.

07:30 On the way back I stop at the *boulangerie* (bakery) as usual. I chat to Madame Baguette about the weather. They're getting to know me; I'm starting to feel like a local. We're even on nodding terms with the checkout ladies at the local Intermarche now. I like this.

08:00 Back on the campsite breakfast is the usual idyllic experience, with the warm morning sun filtering through the trees. Renee, the *patron*, is making the rounds with his faithful dog Cerise in tow. A campervan pulls onto the site; it's a Big Event. Such is the rhythm of our days here; they're just sliding by.

10:30 Here in the market at Issigeac I've just told a handsome French lady she has '*belle tomates*'. She gave me a certain dubious look in response; I'm not entirely sure I won her over. I had been photographing her big red juicy fruit as she was dealing with another customer, without her consent I have to admit. Ultimately it was Wendy's purchase of a few of the said '*belle tomates*' that rescued the *Entente Cordiale*. With Anglo-French relations restored, I move on to focus my lens on piles of ripe olives, as you do on a Sunday morning in the Pays de Bergerac. Yet another French market, yet more pictures to add to my international collection of ladies with colourful vegetables, but who can resist such a bustle of Gallic colour? 🍅



DAVID NOTON

Pro travel & landscape photographer

DAVID IS AN AWARD-WINNING Canon photographer with more than 30 years' professional experience. During his career David has travelled to just about every corner of the globe. In 2012, Canon invited him into its Ambassador Program by designating him an Official Canon Explorer. Info and photos at www.davidnoton.com

NEXT MONTH EXMOOR

**// Basil scampers
across the field, and then
stops just in the right
place, as if posing //**

**A fox in a field near Molières, Pays de
Bergerac, Périgord**

Lens	Canon EF 200-400mm f/4L IS USM Extender 1.4x
Exposure	1.6 sec, f/22, ISO100

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Lauren Scott
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Welcome...

HOWDY! In this issue we're encouraging you to soak up some sunshine, whatever the subject. Start by heading outside to try our splash without flash project. It's fascinating fun to freeze liquids in motion with rapid shutter speeds – not to mention make a huge mess! Capture a quintessential spring scene by roaming around golden floral fields. Or why not take things at a slower pace and bask by developing a Sunprint? We also show you how you can experiment with bolder compositions and leave negative space around your main subjects.

Heading over the editing side of things, discover how to conjure up a glowing lightsaber in Photoshop. It's a great project to try with family and friends. If you've got a penchant for portraits, find out how the High Pass filter can both soften and sharpen facial details. Last but not least, boost colours and add vignettes using Lightroom's Radial Filter.



46 Liquid motion
Record magical shots of splashes and spills using nothing more than a fast shutter speed



50 Bloomin' lovely
Learn how to capture bright floral landscapes contrasted against brilliantly bright and blue skies



54 Here comes the sun
Want to make better use of your sunbathing time? Get arty and create a vibrant Sunprint



58 Space exploration
Think of your camera frame as a blank canvas and start using negative space more effectively



60 Sharpen to perfection
The versatile High Pass filter excels at both sharpening details and softening skin – without looking fake



62 Feel the force
We show you how to add a glowing lightsaber using nothing more than a few Photoshop edits



64 The Radial filter
Discover how easy it is to draw the eye to your main subject by adding circular adjustments

VIEW THE VIDEOS

WHENEVER you see this icon you'll find an accompanying video on our Video Disc. You'll also find these videos online – so you can view them on a tablet or computer without an optical drive. See the links on the project page.





THE MISSION

Capture splashes with high-speed photography

Time needed
1 hour

Skill level
Intermediate

Kit needed
Close-focusing lens
• Tripod • Liquid
• Container
• Objects to drop
• Poster boards
• Food colouring

Splash without flash

Lauren Scott demonstrates an easy way to capture liquid motion

Taking photos of splashes and spills might not be anything new, but it's always fun

to try. Freezing motion using high-speed photography feels like magic, because it gives you a glimpse into everyday moments that usually happen too fast for our eyes to process. Many splash photographers make use of softboxes, Speedlites and a maze of triggers, but we're here to show you how it can be done using just your Canon DSLR and a fast

shutter speed. When you attempt anything new there's a learning curve involved, and this project is no different. Once you've set up, focusing is the first tricky element. By setting the lens to manual focus, you might need to adopt a slight trial-and-error approach and take plenty of test shots as you tweak the focus point.

The shutter also needs to be fired at the perfect time, at exactly the moment when the object first hits the liquid. Don't get frustrated if you can't initially fire the shutter

at the same time as the splashes appear. Simply review your shots and work out whether you need to fire earlier or later next time. By dropping objects from the same height each time, you'll find it easier to figure this variable out.

Intricate splash shots like this can be a challenge for your patience, but they're also a real chance to conjure up super-dynamic still lifes. Shake things up by adding food colouring, try different objects, then give the final images a Photoshop boost. 📸



VIDEO ALSO ONLINE
http://bit.ly/pp_127_1

PROJECT 1

THE SETUP DON'T SPLASH OUT ON KIT

It's simpler than you'd think to capture freeze-frame drops

THE SETUP for this technique isn't an overly complicated one, but like any still life shoot there are a few basic things to bear in mind. Because we're using a completely flash-free technique to freeze movement, it does mean that you're

reliant on having enough ambient light in your chosen environment. You need to reach shutter speeds that are fast enough to capture the splashes in mid-air, so ideally you should try to stay around 1/1000 sec or higher.

Set up outside, where you can harness daylight. This also means you'll have more space to work with, and will be able to keep any mess away from a home environment. Shoot on days where there's little wind and plenty of light!

QUICK TIP!

Use a wireless remote release to fire off your camera in one hand and drop an object with the other hand



01 MANUAL MODE

To freeze the motion of splashes, you'll need to use a DSLR and set it to a very fast shutter speed in Manual or TV mode.



02 STURDY TRIPOD

Although you *could* handhold the camera for this project, it's much simpler to mount it on a tripod and compose the scene.



03 WORK SURFACE

Work in a garden or outdoor spot, to avoid splash explosions coating your house. Use a flat area such as a bench, chair or table.

ESSENTIAL INGREDIENTS WHAT YOU'LL NEED



01 LIQUID

You can use water, milk, coffee, tea – or any other liquid that takes your fancy. Think carefully about the viscosity of the liquid – the thicker it is, the less dynamic the splash will be.



02 POSTER BOARDS

White or black boards are an essential prop. One can be positioned underneath the container, and the other can be used as a plain backdrop. Alternate between the two colours, depending on the subject.



03 CONTAINER

You can use anything to hold the liquids, such as cups, mugs or trays. You might want to start with a big glass or plastic bowl until you've perfected the technique, so you have a bigger area to shoot.



04 OBJECTS TO DROP

For some reason, edible objects are the most fun to drop – and eat when no one is looking. Try out items in different sizes and shapes, such as fruits (berries work well), cereal or even mini-doughnuts.



05 FOOD COLOURING

Adding drops of colour to the liquids brings another level of interest and experimentation to this project. Invest in a few different hues and then swirl them around to get some great effects.

STEP BY STEP DROP IT LIKE IT'S HOT

Get ready and set to fire the shutter when your objects hit the liquid



LENS CHOICE

The lens we used here was the Canon EF-S 18-200mm f/3.5-5.6 IS, which has a minimum focusing distance of 0.45m. We were able to zoom in to the container and photograph the splashes, but because we were using a longer focal length the camera remained splash-free...



01 THE BIG SETUP

Place one poster board underneath a container and one directly behind it. Fill the container all the way to the top with your chosen liquid, along with any food colourings. Tripod-mount a DSLR at container height.



02 FOCUS YOUR FRAME

Choose a lens and arrange the composition, making sure your splash will fill the frame. Switch the lens to manual focus. Hold the object or a finger in the spot where the object will hit the liquid, and focus here.



03 CAMERA SETTINGS

Start with a shutter of 1/1000 sec and an ISO of 400. If it's overcast, bump up the ISO. We set our Canon EOS 7D Mk II to high-speed burst mode, which gave us 10fps. Shoot Raw so you can fine-tune images later.



04 LET IT DROP

Now for the fun part! Hold the object over the container, drop it, and fire the shutter simultaneously. If you can reach, fire the camera using a high-speed burst mode instead of using a remote control.



05 TWEAK AND REPEAT

Review your shots, and increase the shutter speed if necessary. Zoom in, check the focus, and ensure the aperture you're getting renders enough of the frame sharp. If it's overcast outside, bump up the ISO again.



06 HAVE SOME FUN

When you've got a few shots in the bag, experiment! Use different colours, containers and objects for a whole host of varied results. The bigger the object, the bigger the splash! Don't be afraid to get really messy.

NEXT MONTH
MIST FILTERS

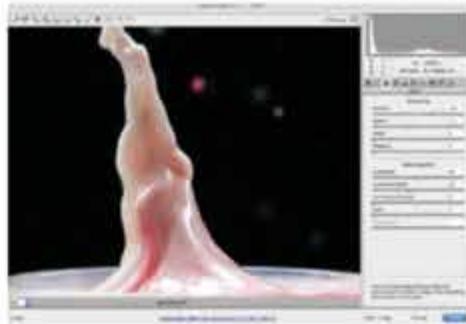
EDITING TIPS FOR DYNAMIC RESULTS

Enhance the splashy effect with these quick Adobe Camera Raw fixes



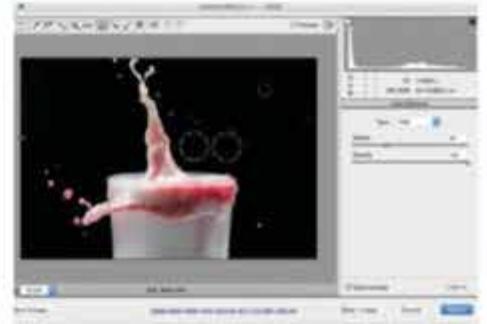
01 GENERAL TWEAKING

Splash images can be dull straight from the camera, so our main aim is to add punch. Boost the Exposure, Contrast and Whites levels. Lower the Shadows and Blacks, as this will bring the black poster board to a deeper, uniform tone.



02 SHARPEN IT UP

These liquid shots require a high ISO to reach fast shutter speeds, and so the final images can appear a bit noisy. Go to the Detail panel and use the Noise Reduction slider, zooming in to see the effect. Then, add definition using the Sharpening slider.



03 REMOVE THE MESS

Because the liquid splashes onto the black backdrop, you'll get drops of moisture appearing as blurry spots in the background. Use the Spot Removal tool to clear up any distracting elements, making sure to change the brush radius to suit.

CHEAT EFFECT MERGE SEVERAL SHOTS TOGETHER

Combine a few of your shots in Photoshop for the ultimate splash magic result



YOU MIGHT notice that you often get a few great individual splashes in each shot, but not any frame-filling examples. Fortunately, it's easy to combine a few splashes from different images into one dynamic frame (provided you use a tripod and don't change the composition).

Open your images as separate Photoshop layers, then change the blending mode to Lighten. Darken the Shadows, up the Contrast and use the Dodge tool selectively to brighten up 'strands' of liquid. You might well find yourself spending hours editing these intriguing composites...





PROJECT 2

THE MISSION

Capture colourful photos of rapeseed flower fields

Time needed
45 minutes

Skill level
Easy

Kit needed
Standard zoom lens
• Polarizing filter

Bloomin' fields

Flowery fields in bloom make wonderfully colourful landscape photos. **Peter Travers** shows you how to capture some creative compositions

When farmers' fields are full of yellow rapeseed flowers in full blossom, they offer a great photographic opportunity, especially when contrasting brilliantly against bright blue skies.

Let's take a look at the best techniques to help you capture some great results.

As we're shooting in bright daylight, we can shoot handheld as our shutter speeds are fairly quick. Just make sure your shutter speed is faster than your effective focal length to overcome potential camera shake issues: so if you're using a focal length of 60mm, your shutter speed needs to be faster than 1/60 sec (1/100 sec on a crop-sensor Canon due to the 1.6x focal length multiplier).

As we're exposing for the brighter flowers in the field, lit by

the midday sun, this automatically ensures the sky appears darker and bluer for a more dynamic photo. To further enhance this effect, we've used a polarizing filter to boost the colours for a really punchy shot – these filters darken blues in skies, making clouds pop out and the contrast against the sun-lit yellow flowers in the field even more dramatic.

Bear in mind that a polarizer will reduce the light reaching your sensor by around two stops and therefore slow down shutter speeds. If they drop too low, increase your ISO from 100 to 200 or 400 to avoid blurry shots when shooting handheld.

We shot in Av mode to take control of our aperture. With the polarizer attached and turned for its full effect on a bright sunny day, our exposure was f/8 at 1/100 sec and ISO100.

For this scene, we're after a minimalist composition to show off the blocks of yellow fields and blue sky. We've composed so the rapeseed field fills the bottom third of our frame, and the sky fills the top two thirds. It makes for a much more arresting image than if the horizon was central.

How close you get to the fields and your focal length will determine how the flowers appear in the frame. Standing back and shooting from a slightly higher vantage point then zooming in and pointing your camera down will help you to see more of the rapeseed field, and the flowers will look more dense.

We took our photos at the end of April, but if you've missed the rapeseed flowers in full bloom, not too worry, May and June are great times for shooting poppy fields instead... ❖



STEP BY STEP FLOWERY FIELDS FOREVER

Key camera settings, lens setup and using filters to capture the best results

LEVEL HORIZONS

Enable the viewfinder grid display (labelled VF Grid Display in the menu) and you can ensure the camera is level by lining up the horizon with the grid lines in the viewfinder. Some cameras, such as the 5D Mark III, also offer an electronic level in the viewfinder via custom functions. Or use a tripod and Live View and press Info until the level appears on your rear LCD.



01 GET ORF MY LAND!

Before starting shooting, please be respectful of farmers and their land. Shoot from public footpaths and bridleways around the edges of the rapeseed fields, rather than wading in and damaging their crop. You'll find the best compositions from these spots at the perimeter and further back anyway.



02 CANON DSLR & LENS

We're using our Canon EOS 5D Mark III and Canon EF 24-105mm f/4L IS USM standard zoom lens for our photos, but any Canon DSLR and kit lens will work for these simple scenic photos. We're shooting in Av mode, so we set the aperture, and our camera sets the shutter speed for a good exposure.



03 DEPTH OF FIELD

We've set an aperture of f/8 and are using a focal length of 60mm on our lens. When focusing a third into our scene – towards the back of the rapeseed field for us – these settings give us enough depth of field so the whole scene is sharp. This midrange aperture also captures the optimum image quality.



04 POLARIZING POWER

We're also using a polarizing filter – these are great for darkening the blue skies and boosting contrast for an even more dramatic shot. The effect is most pronounced when you shoot at right-angles to the sun (so the sun falls on your shoulder); twist the outer rim of the filter to enhance the polarizing effect.

QUICK TIP!

Step back from the edge of the field and zoom in with your lens to make the flowers appear more densely packed

DSLR TECHNIQUES CREATIVE COMPOSITIONS

Don't be lazy with your composition! Try these more interesting framing methods



GO VERTICAL

Rather than in the classic 'landscape in landscape' format, also try shooting vertically for a more creative composition. You'll need to consider which section of your scene you focus on, and how you position clouds in the sky to fit the vertical shape frame. Experiment and you will be rewarded.



01 AVOID CENTRAL HORIZONS

Think about where to position the horizon for more creative shots. Rather than simply putting the horizon in the centre of the frame as here, for our main image, on the previous page, we've used the rule of thirds to position the horizon. The improvement is instant.



02 GET IN CLOSE

Getting closer to the edge of the flowers and shooting with a wide-angle focal length (24mm in our example) captures a different perspective, with the horizon further in the distance. We were lucky we had blue skies with white clouds to add a little extra interest.



03 SHOOT THROUGH FOLIAGE

Look for overhanging branches and leaves for framing and for a different point of view. Any foliage that is in shadow will appear darker compared to the brighter scene – use this to your advantage so the eye is drawn to prettier scene we can see beyond.



04 DUTCH TILT

Go wild and tilt your camera, following the edge of the rapeseed fields. This technique breaks all the normal rules, but can work out well for shots that feature distinctive lines and horizons like this. Streaky clouds in skies can add to the effect.

NEXT MONTH
COLOURFUL
PET PHOTOS

THREE TIPS GO VERTICAL, GET ARTISTIC & GO BLURRY

Discover three different ways to approach your landscape photography for more artistic images



WAIT FOR THE SUN

As clouds block the sun this can leave strong lines across the fields. Time it right and you can take a winning shot like this! Embrace the changing weather and make the most of it for cool results.



EMPHASIZE THE FIELDS

Include more flower fields than sky in the shot, so instead of filling your frame with two-thirds sky/one-third flowers, try the reverse. This works well if the sky isn't that inspiring on the day.



EMBRACE THE BLUR

Scenic shots don't always have to be shot on a wide lens at narrow apertures for front-to-back sharpness. We shot this at f/2.8 on a 100mm macro lens, blurring the foreground and background nicely.

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AFTER

THE MISSION

To turn everyday objects and photos into Sunprints

Time needed
30 minutes

Skill level
Easy

Kit needed
Sunprint paper
• Printed photos or interesting objects

Here comes the sun

Lauren Scott uses hot summer rays to create cool Sunprints

As the seasons change and the sun reappears, use the boost in light to create your very own homemade Sunprints.

First things first, what on earth are Sunprints? Put simply, Sunprint is a special type of photographic paper that's based on the cyanotype process, and it's sensitive to the sun. You can pick it up online (www.sunprints.org) or from craft shops.

When you expose it to bright daylight, areas that block the sun's

light show up in white, and the rest of the paper turns a vibrant blue. These blue prints have bags of character. You can either make prints of physical objects straight onto the paper, or transfer images taken on your Canon DSLR via a transparency sheet, which is the method we're demonstrating here.

The beauty of this project is its simplicity. You don't need a darkroom, any fancy kit or extensive knowledge of film processing to get going. Plus, unlike traditional photo prints,

Sunprints can be made without any photo chemicals at all, so they're really great to try out with enthusiastic kids who have art and science projects.

See how you can transform your own digital pictures to authentic homemade photo prints using this quick-and-easy process. All you need is a little bit of sunshine, water and imagination. Expose, develop, then rinse the paper in water, and watch – as if by magic – a beautiful long-lasting image begin to appear. ☺



VIDEO ALSO ONLINE
http://bit.ly/pp_127_3

CREATE **SUNPRINTS**

PROJECT 3

FIRST STAGE PREPARE YOUR IMAGE

You'll need a negative version of the photo you want to turn into a Sunprint



01 PICK YOUR SHOT

First, decide what photo(s) to try out. Generally, high-contrast scenes work best, as the final result will only be in a blue monochrome. Images that are already in black and white lend themselves well to the technique. Avoid complex photos and those that rely on lots of tonal details.



02 TURN IT AROUND

In Photoshop (or similar editing software), convert your digital image to greyscale mode, and invert the tones by going to Image>Mode>Greyscale, then Image>Adjustments>Invert (or hit Cmd/Ctrl+I). You might want to boost the contrast of the negative a little before you proceed.



03 PRINT IT OUT

Print your image out at the same size you want it to be on your Sunprint paper. Printers can be pesky, so this might take a few tests and tweaks to the layout options. Use standard rather than fancy photo paper, and if possible, print your images in black and white or greyscale.

HEAD OUTSIDE SOAK UP THE SUNSHINE

You only need a few household items to get started on this project



SETUP WHAT YOU'LL NEED

This low-cost project only requires a few simple bits and bobs. As we mentioned above, you'll need a digital photo to transfer and a printer for the negative. Once this stage is complete, grab a bowl or tray filled with water, some sticky tape, your Sunprint paper and a piece of glass or Perspex (the bigger Sunprint kits come with this included). You'll probably find the hardest thing to come by is a sunny day! When the clouds do part, grab your Sunprint paper and follow the easy exposing method over the page.



STEP BY STEP EXPOSE THE PAPER

Follow this simple method for unusual homemade prints



USE OBJECTS

Why not try placing flat objects, such as feathers and leaves, directly on to the Sunprint paper? Flatten your favourite objects between the paper and the acrylic or glass sheet, then follow the same exposing and developing method. The exposure time needed will be much shorter, as the sunlight won't have to penetrate any paper.



01 GATHER SUPPLIES

Fill up a developer container with water and set it to one side. Grab some Sunprint paper, roughly matching its size with your negative. If your kit doesn't have Perspex, use glass from a cheap photo frame.



02 IN THE SHADE

The blue chemicals embedded in Sunprint paper are sensitive to ultra-violet light. It's important to set up your prints inside or out of direct sunlight, otherwise the paper is likely to start exposing too quickly.



03 PREPARE THE PHOTO

Place your negative on top of the Sunprint paper (blue side up). Line up the glass, negative, Sunprint paper, and a piece of cardboard, then use a few bits of tape to secure it together and stop it sliding around.



04 SUNBATHE YOUR PRINT

Let the print bask for about 20 minutes, and check the exposure of the paper by lifting a corner back from the frame. When the edges are white, it's fully exposed. On a cloudy day, it might need an extra five minutes.



05 HIT THE WATER

When there's a clear imprint of your image on the paper, rinse your Sunprint. Take it off the back of the glass and place it into the water tray. It'll change from a negative to a positive before your eyes.



06 SEE THE MAGIC

Take your print out of the water after a few minutes and let it dry naturally. The colours will deepen as the paper dries. Avoid touching the surface of the paper and, ideally, peg it up or lie it flat somewhere. Voila!

**NEXT MONTH
SHOOT A RING
OF FIRE**

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PROJECT 4



THE MISSION

Learn how and when to exaggerate the negative space in your photos

Time needed
One hour

Skill level
Easy

Kit needed
Tripod (optional),
ND filters (optional)

Space exploration

James Paterson explains how to think positively about the negative space in your photographs, and so make your compositions more interesting

Your camera's sensor is a blank canvas onto which you can place whatever you like in the frame. Within that 3-by-2 box there's ample room for manoeuvre. The typical approach is to come in tight and cram the frame with detail, but sometimes it might be more effective to leave parts of the frame empty in order to create a different mood.

We call the empty parts of a frame 'negative space'. This is typically anywhere that is either

lacking in detail, blurred or otherwise plain and unformed. By contrast, the 'positive space' will be areas of interest, such as your subject or other notable details. Just because the rest is 'negative', it doesn't mean it's a bad thing.

If we play with the balance between positive and negative space we can produce strikingly bold compositions, especially if we intentionally overemphasize the negative space. The key is in understanding how negative space can change the mood. It's about

knowing when to come in tight on something important, and when to back off and use the space to tell the story.

Take our lighthouse. If we fill the frame with the lighthouse, the emphasis is on the shape of the structure itself, whereas if we pull back and include the empty wide expanse of beach and sea, we can emphasize the sense of isolation to create a more sombre, and perhaps more meaningful picture. Read on for a few tips on creating your own negative space... 📍

COMPOSITION SKILLS SPACE CADET

Experiment with bold compositions by leaving empty, negative space around your subjects



01 CHOOSE A LOCATION

This is an exercise in seeking negative space, so any subject will do – a building, person, flower – whatever you like. The iconic lighthouse at Burnham-on-Sea was our choice, a lone structure in a wide open beach. While not essential, a tripod helps to perfect your composition.



02 COMPOSE IN THE CORNERS

Experiment by moving the subject around to different corners of the frame. You'll get different results depending on whether you change the camera angle, or get up and move to a different spot. A wide-angle zoom lens, like the 16-35 used here, can be very useful.



03 EMPHASIZE THE BLUR

As well as the placement of the subject, we can create negative space with depth of field by blurring parts of the frame. A wide aperture, like f/2.8, helps achieve this, but also try getting up really close to surfaces to emphasize the blur – the camera was on the ground here.



04 TRY MOTION BLUR

As well as blurring with focus, we can also blur out detail using a long exposure to soften details in the negative space. This works particularly well with moving water or clouds. In full daylight you'll need a strong neutral density filter and a tripod for exposures of 30 seconds or more.



05 LOOK FOR FRAMES

A classic compositional device is to create a frame within a frame by composing through objects so that they surround the subject like this. Here the out-of-focus legs of the lighthouse become part of the negative space, framing the dog in the distance.



06 LIGHT AND DARK

Differences in light can help to create expanses of negative space. Here the lighthouse makes a strong silhouette, while the fading light results in moody dark negative space across the beach and sky. Look for contrast and expose for either the shadows or highlights.



THINK OUTSIDE THE BOX

At an iconic location it can be hard to find an approach that hasn't been done a hundred times. But remember, while we might not have a great deal of control over the look of the subject – or rather the positive part of the frame – we can still control the negative parts. So why not try framing boldly like this for an unusual take on a familiar subject?

QUICK TIP!

To get a feel for negative space, why not revisit a few old photos from your image library and experiment with different crops?

NEXT MONTH
TRAFFIC
TRAILS



PHOTOSHOP ELEMENTS

BEFORE



AFTER

THE MISSION

Learn how to sharpen images and soften skin with the High Pass filter

Time needed
10 minutes

Skill level
Easy

Kit needed
Photoshop Elements

Sharpen to perfection

The amazing High Pass filter in Photoshop Elements excels at sharpening details and softening skin, as beautician **James Paterson** explains

Is there any Photoshop crime worse than plastic skin? We've all seen it – that ghastly mush of skin tones that achieves the opposite effect of what, fundamentally, a good portrait should do – make the subject look human. The flip side is that, of all subjects, people tend to benefit most from a few selective enhancements in Photoshop. The key thing is that these enhancements should be barely perceivable. Think pixel-smoothing, not pixel-bruising.

Few tools are more suited to the job than the High Pass filter. It performs not one, but two

essential tasks, and does them very well. First and foremost it excels at sharpening. Many prefer it to more conventional sharpening filters, like Unsharp Mask, for the way it crisps up details. It's a sharpening method that works for all kinds of images, from landscapes to architecture. But with portraits we rarely want to apply sharpening uniformly. Instead we can make it work selectively across the image. What's more, that sharpening effect can instantly be turned into a wonderful softening effect. It works beautifully over skin, and without a hint of plastic.

At first glance the High Pass filter creates a flat, grey image that appears to have no artistic or practical use. However, within that mass of grey is the fine detail of our photo. High Pass works by targeting the edge contrast that occurs where one colour meets another. This detail is sometimes called 'high-frequency'. All other detail – the 'low-frequency' detail – is suppressed. That suppressed detail is the expanse of grey that covers most of the image. To remove the grey we simply change our layer blending mode, then control how the effect plays across the image with a layer mask. 📌

DOWNLOAD PROJECT FILES TO YOUR COMPUTER FROM:
<http://downloads.photoplusmag.com/pp127.zip>

STEP BY STEP SHARPENING AND SOFTENING

Learn how to use a combination of layer skills and filters to enhance a portrait



01 REMOVE BLEMISHES

Open high_pass_before.jpg. Click 'Expert' at the top to go into Expert Mode. Go to the Layers panel and click the New Layer icon. Grab the Spot Healing Brush tool from the toolbar, check 'Sample All Layers' in the tool options then paint over marks to remove them.



02 APPLY HIGH PASS

Hit Cmd/Ctrl+Shift+Alt+E to merge the layers. Go to Filter>Other>High Pass. The right strength depends on your image and resolution, but begin around 8. Hit OK. In the Layers panel change the blending mode from Normal to Overlay. This creates a sharpening effect.



03 SOFTEN THE SKIN

Hit Cmd/Ctrl+I to invert the layer to change the effect from sharpening to softening. Click the Add Mask icon in the Layers panel, then Cmd/Ctrl+I again to invert the mask to black. Grab the Brush tool, set colour to white, then paint to reveal the softening effect over the skin.



04 SHARPEN THE LASHES

Hit Cmd/Ctrl+Shift+Alt+E to make another merged layer. Go to Filter>Other>High Pass. This time we'll use the filter for a sharpening effect, so we'll need a lower amount; try 2-3. As before, change the blending mode of the layer to Overlay, then add a layer mask.



05 SHARPEN SELECTIVELY

With portraits it's better to apply sharpening selectively to certain areas rather than uniformly to the entire face. Hit Cmd/Ctrl+I to invert the layer mask to black, hiding the effect. Use the Brush tool to carefully paint white over the eyes, lashes and lips to reveal the sharpening.



06 DODGE & BURN

Use the Layer Opacity control to adjust the sharpening strength. Finally, we'll dodge and burn the face. Alt-click the New Layer icon in the Layers panel. Choose Mode: Overlay and check the 'Fill with...' box. Grab the Brush tool and paint white to lighten areas, black to darken.

DODGING & BURNING PORTRAITS

Many portraits will benefit from a little selective lightening and darkening to lift certain areas or add depth to the features. You can use the method described in Step 6 to create your own custom dodge and burn layer. From here, we can paint with white or black to lighten or darken (best to do this with the brush set to a low opacity of around 10%). We would usually lighten the tops of the cheekbones, irises, ridge of the nose and chin. Then darken the hairline, under the cheekbones, edge of the iris, and under the chin.

QUICK TIP!

If you need to tone down either the sharpening or softening effect created with High Pass, simply lower the layer opacity

**NEXT MONTH
DELETE PHOTO
BOMBERS**



PHOTOSHOP CC



THE MISSION

Make a glowing lightsaber in Photoshop

Time needed
15 minutes

Skill level
Intermediate

Kit needed
Photoshop CC

DOWNLOAD PROJECT FILES TO YOUR COMPUTER FROM:
<http://downloads.photoplusmag.com/pp127.zip>

Feel the force

Jason Parnell-Brookes shows you how to create your own lightsaber armed with nothing more than a few quick Photoshop edits

Which will you choose – the dark side or the light side? With this quick Photoshop tutorial you can choose either.

The first step is to take a photo of someone mid-pose with a toy lightsaber. This is a great project to get the kids involved with. Next, you'll learn how to add the

perfect glow effect with the Brush tool and a few layers and filters in Photoshop. It's not just the weapon that we're going to recreate here. To make the effect more realistic, you'll need to think about how the light from the imaginary weapon will react with the rest of the scene. Having an idea of how the light will contour the 'saber

holder's face and hands is important. To get this spot-on, try holding a light in your hands while looking in the mirror. This way you'll be able to see where the light falls. With some simple planning you can create a weapon fit for the likes of Obi-Wan. So, let's grab our Photoshop wand and make some movie magic... 🌀

STEP BY STEP GLOW FOR IT

How to add a lightsaber into your portraits



01 PAINT THE 'SABER

Make a new layer (Cmd/Ctrl+Shift+N). Pick the Brush (B), go to Window>Brush, make Spacing 1% for a solid line as you paint. Set a white foreground colour. Click on the handle, hold Shift and click the end of the 'saber. Use a mask to remove the glow on the handle.



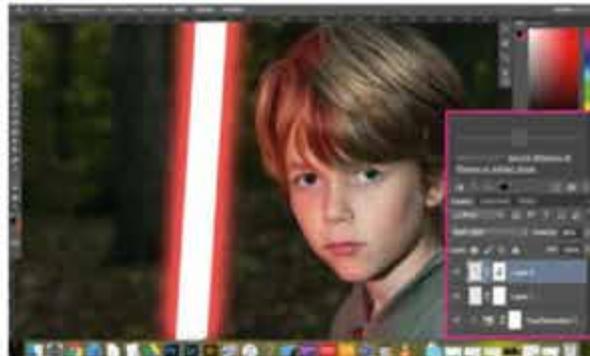
02 MAKE IT GLOW

Duplicate the new layer, right-click on the mask and click Apply Layer Mask. Go to Filter>Blur>Gaussian Blur and set 75 pixels. Duplicate this layer several times to boost the glow. Now drag the original layer (with the lightsaber in) to the top of the Layers palette.



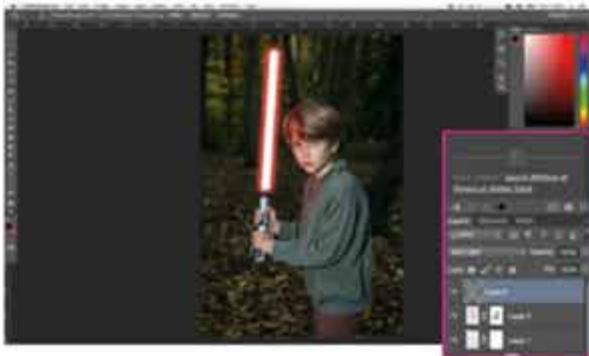
03 ADD A COLOUR

Click the topmost glow layer, Shift-click the bottom one, and press Cmd/Ctrl+G. With the Group selected, add a Hue/Saturation adjustment layer, tick Colorize, lower Lightness and boost Saturation. Alt-click with the cursor halfway between this layer and the group.



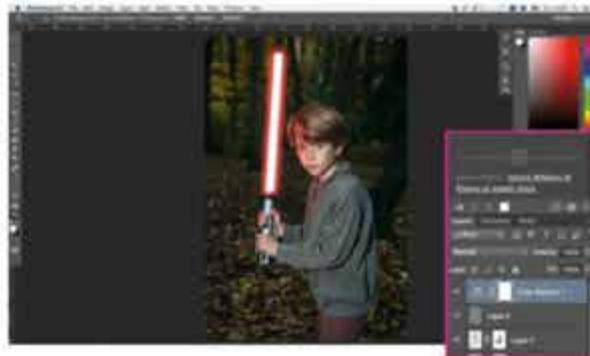
04 LIGHT THE FACE

Make a new layer. Choose the Brush tool, set the glow colour, right-click the image and set brush Hardness to 20%. Set Soft Light blending mode and paint in the glow. Mask out bits that spill onto the scenery. Blur the light with Filter>Blur>Gaussian Blur at 30 pixels.



05 SHARPEN IT UP

To get a gritty, cinematic look, we're going to use the High Pass filter to accentuate the edges in the shot. Use Cmd/Ctrl+Shift+N for a new layer, then Cmd/Ctrl+Alt+Shift+E to merge visible layers. Finally go to Filter>Other>High pass and choose about 80 pixels.



06 TWEAK THE COLOURS

Finally, we'll colour balance the image a little. Make a new adjustment layer and choose Colour Balance. Click on Tone and give the shadows a positive boost on the blue and cyan channels, and turn the highlights orange by boosting the yellow and red channels.

QUICK TIP!
If you don't have a toy lightsaber and Jedi costume, put on a dressing gown and wave a broom handle around instead



ADD IN A VIGNETTE

First, choose the Elliptical Marquee tool (left-click and hold on the Marquee tool to see this option). Drag a circle around your subject, right-click and select Refine Edge. Set Feather to 300 pixels and click OK. Use Cmd/Ctrl+ Shift+ I to invert the selection, pick the Paint Bucket tool (G) with black as the foreground colour (D) and click in the selection. Reduce the layer opacity to 30%.

**NEXT MONTH
EDIT SUNNY
PORTRAITS**



LIGHTROOM

THE MISSION

Find out how to use Lightroom's Radial filter

Time needed
10 minutes

Skill level
Easy

Kit needed
Lightroom 5 or later

Get to grips with the Radial Filter

James Paterson explains how easy it is to draw the eye towards your subject by making a few circular adjustments

From adding vignettes and boosting colour, to adjusting the exposure and white balance, the Radial Filter is a selective tool that enables you to alter the tones in only parts of your image. The radial filter makes it easy to create a subtle, circular blend between the area that you want to be affected by the tonal changes, and the area that will remain unaffected.

It's very useful for creating subtle vignettes that draw the eye towards your subject and away

from distracting edge details, or for softening parts of an image you want to de-emphasize. In this tutorial we've used the tool for two very different tasks – make sure you have a go at both for the full lesson! In the first landscape image, you can drag a circle to darken down the corners of the frame and lead the eye towards the distant lighthouse. And for the portrait shot, we'll show you how to add two circular adjustments – one to claw back blown-out detail in the arm, and the other to add contrast to the face. 📍

DOWNLOAD PROJECT FILES TO YOUR COMPUTER FROM:
<http://downloads.photoplusmag.com/pp127.zip>



STEP BY STEP SELECTIVE ADJUSTMENTS

Discover Lightroom's Radial Filter tool and edit images with subtlety

TOOL OPTIONS

Lightroom has several built-in Radial Filter presets, which can be a good place to start if you're not sure what you want to achieve. It's also possible to create and store your own presets, should you want to repeat a particular image effect in the future. Simply edit away, by tweaking the sliders, then save your settings as a Develop module preset.



01 DRAG A CIRCLE

Bring the starting image into the Develop module and grab the Radial Filter tool from the toolbar at the top-right. This opens up a set of sliders below that can be used to dial in tonal changes for the tool. Set Exposure to -0.65, then drag a circle over the lighthouse to subtly darken the corners of the image.



02 ADD A VIGNETTE

If the circle isn't perfectly positioned, drag the pin to move it. Hold down Shift for a perfect circle, and hold down Alt to make the start point the corner of the circle. If you want to snap the circle to the edges of the image for a vignette, hold down Cmd/Ctrl and double-click with the tool.



AFTER

QUICK TIP!

Tick the Invert Mask checkbox – now any adjustments that you make will be applied inside of the circle



03 MOVE ON TO THE PORTRAIT

Drag a new circle over the face, then dial in Exposure -0.49, Highlights -19. This improves the elbow, but makes the hand too dark. Click Brush at the top-right, then go to the Brush settings below the tonal sliders and click Erase. Press O to toggle the mask overlay on, and paint to erase the mask over the hand.



04 CHANGE INSIDE THE CIRCLE

You can also make circular adjustments that affect the inside, rather than the outside, of the circle. Hold down Cmd/Ctrl+Alt, and drag the pin on the face to make a copy of the original circle. Check Invert Mask below the tonal sliders, double-click Effect to reset them, dial in Contrast +49 to add punch to the face.

**NEXT MONTH
CREATE A
PANORAMA**



MICHAEL NICHOLS

The recently-retired National Geographic editor-at-large Michael 'Nick' Nichols talks to David Clark about his extraordinary 30-year career as a nature photojournalist

I N HIS LAID-BACK voice and Alabama accent, it's easy to forget that Michael 'Nick' Nichols is an unusually dedicated and successful photographer. His 30-odd-year career at Magnum Photos then *National*

Geographic magazine was characterized by an obsessive approach to every detail of his work and a determination to push his photography and himself beyond all normal limits.

Described as 'The Indiana Jones of Photography' by *Paris Match* magazine for his determination to tackle the most challenging assignments in remote locations, this Canon Master has packed a lot of events into his 65 years. In this interview, he discusses everything from his most satisfying assignments to the ethics of using robot cameras, but starts back at the beginning, where his adventures in photography began...

You were interested in art as a teenager?

Yeah, but I wasn't a good artist. I liked to copy other art. Where I came from, art wasn't generally taught in schools. There was no mandate for it. But I had the first art teacher in our system and she let me take art from age 12 until 18. She encouraged me to be an artist, she saw something. Then, from the moment I took my first picture in college, I started telling people I was a photographer. What got me about photography is that it was instant. I liked the fact that I could go out and see something, take a picture of it and go to the darkroom and there it was. Something about that process

01 NORTHERN SPOTTED OWL

Nick placed a mouse on a plate above the camera, and the owl triggered the camera trap when it swooped down

Lens Canon EF 16-35mm f/2.8L USM

Exposure 1/8 sec, f/5.6

02 GIANT PANDA, 2006

Taken at Washington DC's National Zoo for a *National Geographic* story titled *Panda, Inc.* using fluorescent light-balanced flash

Lens Canon EF 16-35mm f/2.8L USM

Exposure 1/15 sec, f/2.8

03 THE TIGER 'BACHHI', 1996

Nick set up his camera, linked to an infrared beam and three strobes, at a water-hole to capture an off-guard moment

Lens Canon EF 28mm f/2.8

Exposure 1/15 sec, f/5.6

04 MOUNTAIN GORILLAS, 1995

Young gorillas on their mothers' backs in Volcanoes National Park, Rwanda, for a *National Geographic* story on the species

Lens Canon EF 35mm f/2

Exposure 1/60 sec, f/5.6

immediately said to me, 'this is what you're supposed to be'. I stuck with it even when I got drafted.

How was your army experience?

My era was the Vietnam era, but by the time I was drafted my age group knew it was a really stupid situation. I was going to be a conscientious objector and have to deal with all that crap, but while I was in process of dealing with it, the war ended, so I went into a peacetime army. I just dove into photography and worked in the photography department. I went in with an almost zero skill set, but by the time I came out my skill set had really advanced and I had a lot of technical background. Within a year or so of coming out of the army I was doing my first assignment for *Geo* magazine.

What did you start photographing?

I started by exploring caves. They are the ultimate challenge because there's no light. You're painting with light. I was photographing things that no one else was doing – not because I was so special, but because nobody else wanted to do it. Most covers that were photographing didn't have the background I had to make the pictures a little different. I tried not to light in such a full manner, more of a selective manner. So caves pushed me

“ I photographed things no one else was – because nobody else wanted to do it ”



into that, which is what opened doors for me. Magazines were like, "He'll go anywhere!" My second assignment was photographing a really dangerous river in Pakistan, the Indus. I didn't even know how to swim to the degree you should in that situation, but I figured if I had a life jacket on and I wasn't unconscious, I was going to wash up somewhere. It was a crazy attitude.

You were influenced by photojournalists like Cartier-Bresson, so why did you gravitate towards photographing nature?

I'm pretty sure it's because I'm so comfortable with it and, as soon as I stepped into photography, my abilities in the wilderness joined with it. Even

though I was looking at the work of photojournalists and learning from them, my real abilities were about going to tough places and into nature. When I joined Magnum in the '80s, I was a nature photographer in a group of socially conscious photographers. In that situation, after a while you're going to start having a conscience if you have the ability to have one, and I saw I could work for nature.

So you became a photojournalist specializing in wildlife rather than a wildlife photographer?

Yeah, I'm not a big fan of wildlife photography per se. I don't know why, maybe it's because I don't want to be competitive and it's easier for me to love



04

people like Eugene Richards, because I'm not competing with them. Sometimes I ask myself why I don't emulate Frans Lanting and other photographers in my genre. I think it's because sometimes wildlife photography is just about, 'Can I get a picture of this animal?' For me it was always something more. I want to go someplace where somebody else hasn't been. That's what allows me to pretend to be special. I'm not disdaining my wildlife photographer colleagues, it's just I'd rather be thought of as a photojournalist.

You've always immersed yourself in your projects – has that been the key to your success?

Obsessive focus, yes! Ultimately that's a disease. I didn't know I had it for most of my life. But when our youngest son was having trouble in school, we went to have him tested for ADHD. When we discussed the results with the shrink, within about 30 seconds she said to me, "You have it in spades." And I remembered how I'd be in my tent in the Congo, knowing I had to get up before dawn, and I'd put my cameras exactly where they needed to be next to me. My pack would have exactly what I needed. Over my lifetime I trained myself to become more and more focused, until I finally broke down. And what told me I had to stop it was that neither my body or my mind could keep it

STORY BEHIND THE SHOT



Charging Elephant, 1993

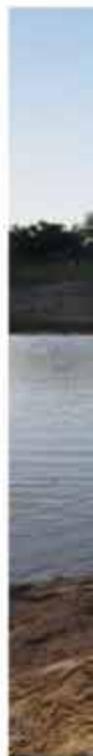
Michael Nichols tells the story behind one of his most famous images

"This was taken in Dzanga Bai in the Central African Republic, a place that was truly wild. Everything had to be done on foot, so I was sneaking up on animals, trying to stay downwind. Here I found a female foraging at the stream bed at dawn. I snuck up on her with a 70-200mm, but that was too damn close.

I had to use flash, or there was no chance it was going to be sharp. But as soon as I clicked the flash woke her up, and by the time I took the second shot [above] she was charging. I took the shot with 1/4 sec exposure, and the mix of dawn light and a little bit of flash created the energy I was looking for."

THE **PRO** INTERVIEW

05





05 JANE GOODALL & 'GREGOIRE', 1995
Primatologist Jane Goodall rescued the chimpanzee 'Gregoire' from very poor conditions in Brazzaville Zoo, Congo

Lens Canon EF 17-35mm f/2.8L USM

Exposure 1/30 sec, f/2.8

06 'WHISKEY'
This chimpanzee was found chained by its neck in a disused lavatory in Burundi, East Africa. It was later released

Lens Canon EF 17-35mm f/2.8L USM

Exposure 1/2 sec, f/2.8

07 CROCODILE, 2006,
Nick used a Digital Rebel XT (350D) and camera trap to photograph this crocodile in Zakouma National Park, Chad

Lens Sigma 10-20mm f/3.5 EX DC HSM

Exposure 1/15 sec, f/5.6



“ The work we did led to so much funding and national parks being created ”

of lenses. I've always used Canon. I bought Canon cameras with the money that came from my first magazine assignment and I never used anything else, except with special situations where I could find no Canon camera that could solve the problem.

You've used drones and robotic cameras. Has new technology got a lot to offer wildlife photography?

With all the things that are happening with technology, the limits of photography are unknown. We're going to see things that are so cool we can't even imagine them. However, with that technology comes responsibility. I don't want the world to think that wild animals are tame. They're not. If you get close to them with tricks, like I did, you must always disclose that. It also brings ethical responsibilities in the field. You shouldn't be buzzing elephants with a drone until you've spent three days showing them the drone is cool. If an animal told me it wasn't happy with what I was doing, I would find a way to do it differently.

What made you quit National Geographic?

I melted down on my last project in Yellowstone, because I'd had such a

up. But if I wasn't like that, I couldn't have done what I've done in my life.

Which of your stories has given you the most satisfaction?

I'll give you three because my career has been long and I don't want to leave behind what happened early for what happened late. The first was photographing mountain gorillas [in Rwanda in 1981]. As a young photographer that assignment really set me on my path, because I realized my behaviour, concentration and body language could really enable me to do this. Those pictures led to helping finance the Mountain Gorilla project, which is what saved them. The second was working with Mike Fay in the Congo. I worked for 15 years with this crazy guy,

who makes me look like a butterfly in terms of obsession. The work we did together led to so much funding and so many national parks being created. That's when I realized if you pair yourself with someone like that, you go so much further than you go if you go out there by yourself. Finally, there was the story on lions in the Serengeti [published in 2013]. I was obsessed with doing it on their terms and it turned out as good as I could have dreamed of, except I didn't get to photograph their migration. You can't always get everything you dream about, but if you get part of it you can be pretty damn happy with it.

What equipment did you use?

At *National Geographic* I had EOS-1D X and 5D Mark III bodies with a full range



08

08 'C-BOY', 2012

Black-maned lion C-Boy was photographed on Africa's Serengeti Plains with a Canon EOS 5D Mk III converted to shoot infrared

Lens Canon EF 24-70mm f/2.8L USM

Exposure 1/60 sec, f/4, ISO200

09 BABY ELEPHANT, 2010

Baby elephant 'Shukuru' was rescued and cared for by David Sheldrick Wildlife Trust orphanage in Nairobi National Park, Kenya

Lens Canon EF 24-70mm f/2.8L USM

Exposure 1/250 sec, f/5.6

10 VUMBI PRIDE, 2011

Nick carefully habituated the Serengeti National Park's 'Vumbi Pride' lionesses to a robot camera so they ignored it

Lens Canon EF 50mm f/1.8

Exposure 1/500 sec, f/11, ISO200

// I can't accept a world where we don't respect everything that lives on the earth, so I'm not going to //

golden ride and it started changing. I knew the industry was changing, but I thought it wasn't going to happen to me. On the Yellowstone project, I didn't get what I wanted and I just walked out the door and never walked back in. It's not like I'm still angry, but what I was saying was, "I've always been an essayist here, I've always had a set of pictures that tied the room together, and how you've thrown my pictures into a bag and you're pulling them out by who likes what." And I don't play that game. I wanted to have an essay about what a national park means and I could not get it, so I just walked out.

What advice would you give someone starting out in nature photography?

I would say find a passion and stick with that. If you live in the UK, don't think you have to go to Africa to photograph animals. You can end up in Africa, but you're going to get there by going to your backyard and doing something special there. Work on something you can do competitively without spending a fortune, such as urban wildlife. That will open the world up to you. Then you can figure out how to get funding for something more. Magazines don't want another story on

lions or elephants. Stick to the world you know, either with nature or social issues.

Does photography have a major role in protecting nature?

I think it has the pre-eminent role. Wildlife films have an important role, but I think still photographs do something more. Certainly, with the work I did in Congo, for example, those places were not going to be national parks, they were going to be cut because they had no tourism value. If you make people care by using images then you can protect.

Are you hopeful for the future of wild animals?

I can't accept a world where we don't respect everything that lives on the earth, so I'm not going to, even with the president we have now. I think we're headed for a renaissance in nature because we went so far. It's not because we're any better. It's just we took it as far as we could take it. For instance, we're coming out of the ivory crisis. I think the elephant population will rebound and start getting out and not getting shot.

What does the future hold for you?

I'm retired and it's been a hard-earned retirement. Now I'm trying to put the



09



PROFILE

Michael 'Nick' Nichols

Wildlife Photojournalist

Michael 'Nick' Nichols was born in Alabama in 1952. After National Service in the US Army in the early 1970s, he began shooting stories for *Geo* magazine. He became a staff photographer for *National Geographic* in 1996 and was promoted as the magazine's editor-at-large for photography in 2008.

He was a member of Magnum Photos from 1982-1995. His books include *Gorilla: Struggle for Survival in the Virungas* (1989), *Brutal Kinship* (with Jane Goodall, 2005) and *Earth to Sky: Among Africa's Elephants, A Species in Crisis* (2013).

In 2007, he founded the LOOK3 Festival of the Photograph in Charlottesville, Virginia. His awards include four first prizes in the World Press Photo awards and first prize in the 2014 Wildlife Photographer of the Year competition.

To see more of Michael's work, visit his website: www.michaelnicknichols.com. *A Wild Life: A Visual Biography of Michael Nichols* by Melissa Harris, Photographs by Michael Nichols, is published by Aperture, price £25.



Next issue: *The Times'* chief sports photographer Marc Aspland



10

person I was to bed. It's not like I want to crawl off and die, but I don't want to be obsessive-compulsive and be such a pain in the ass for the rest of my life. I may be an activist, I may be an advocate. I'll use my pictures, but I don't think I'll step back into trying to change the world with a big audience like during 20 years at *National Geographic*. I may teach at university and try to inspire others with my work and my life, but I wouldn't teach photography, more environmental story-telling. I'm trying to find another way that allows me to photograph without compulsion. To help me get to the next place in life, I got myself a therapy dog, who has been bred right out of dingos. She's a hyperactive, crazy dog that calms me down. Just keeping her on the rails helps me out.

And are you still taking photos?

I still shoot pictures obsessively, but not as much as I did a year ago. I do want to continue to photograph, but I don't know what. I think I'll be more like a hobbyist. The problem is I'm either all in or – I hate to say this – all out. I love photography with every breath I take, but I don't want to chase it anymore. I've had accidents on assignments that really wrecked my meniscus, so for the past 20 years I've been walking with bone on bone while doing very physical things. When I was shooting in Yellowstone a couple of years ago, I was getting steroid shots in my knee to keep me going. But I'm getting a knee replacement in a couple of weeks. If that changes the way I can use my body, who knows what will happen. 🐾

PHOTOSTORIES

Photo essays from PhotoPlus readers and professional photographers alike

JOIN IN
THE FUN!

One of the great things about photography is being able to share your view of the world. We head to the Anglo-Welsh border to photograph wildlife, and prove you don't need high-end kit for great shoots of motorsports...

We want your photos and stories! For your chance to show off your images in *PhotoPlus*, send three to five high-resolution JPEGs, along with a brief synopsis – explain why you took the shots, the location, whether they're part of an ongoing project or a one-off shoot, and anything else unusual or interesting. Also include Canon DSLR, lens and exposure details.

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PROJECT INFO



NAME: Jake Stephen

LOCATION: Shropshire and Powys border

MISSION: To document some of the wildlife that makes its home along the border between Shropshire and Powys

KIT: Canon EOS-1D Mark IV, Canon EF 500mm f/4L IS USM, Canon Extender EF 1.4x, Manfrotto tripod and ball head

www.jakestephenphotography.co.uk

On the border

Jake Stephens takes time to explore the natural areas and habitats along the English and Welsh border

I've been taking pictures for about ten years now and professionally for five years. Over that time, I've discovered that I get much better results if I immerse myself into a subject. For this reason I like to concentrate on my local patch. If you stay close to home you can return to the same sites over and over, spending time getting to know subjects. By observing the species you wish to photograph you'll learn their favourite spots and behaviour.

I often like to visualize an image before I try to capture the shot. Photographing the brown hare was a great example of this; I'd envisioned taking a photo of it peeking through the wheat, using a long lens to isolate it from the surroundings. After observing the hares for a few days, I learned this was a location where the hares passed from one field to another. Once I'd established where they might appear, it was a matter of putting up a hide and waiting for the wheat to mature.



02

01 RED KITE IN FLIGHT

A red kite, its underside lit by reflected snow, at Gigrin Farm, Powys

Lens Canon 500mm f/4L IS USM **Exposure** 1/1250 sec, f/7.1, ISO400

02 BROWN HARE

A brown hare amongst the blurred golden colour of a wheat field

Lens Canon 500mm f/4L IS USM, Canon Extender EF 1.4x **Exposure** 1/400 sec, f/5.6, ISO1250

03 RABBIT AND BLUEBELLS

A rabbit peers through a patch of bluebells and looks to the camera

Lens Canon 500mm f/4L IS USM, Canon Extender EF 1.4x **Exposure** 1/1250 sec, f/5.6, ISO1600

I had also picked up a tip that, if you are planning to photograph red kites from a feeding station, the trick is to go on a day when snow is laying on the ground; this acts as a reflector that lights the underside of the birds, bringing out the colour and detail in their plumage.

Having suggested that doing your planning and research is good idea, sometimes a nice image can just happen along – as with the rabbit in the bluebells.

I had been photographing treecreepers in a bluebell wood, and became aware of the sound of munching behind me. I slowly turned around, and there was the rabbit looking through the bluebells. I fired off a few frames and went back to concentrating on the treecreepers. It was only when I went through the pictures a few days later that I realized what a nice image it is; it's actually become one of my best-selling photos, and I nearly deleted it! 🐰



03

PhotoPlus FEEDBACK

Good wildlife photography always starts with a passion and interest for the species you're photographing, as is clear from Jake's work.

It's obvious that Jake has spent a long time researching his subjects and in the field, and here you can see how the hard work pays off.

Using a long lens and, in some cases, a teleconverter, Jake has produced frame-filling shots of subjects without scaring them away.

// If you stay close to home you can return to the same sites, spending time getting to know subjects //



PROJECT INFO



NAME: Jan van der Walt

LOCATION: Kyalami Grand Prix Circuit, Johannesburg, South Africa

MISSION: To capture the speed and excitement of motor racing

KIT: Canon EOS 1100D, Canon EF-S 18-55mm f/3.5-5.6 III, Canon EF-S 55-250mm f/4-5.6 IS II

www.facebook.com/vanderwaltphotography

Day of thunder

Spending a day photographing the thrills and spills of the GT Supercup – armed with a ‘basic’ Canon EOS and kit lenses

I was afforded an opportunity by the GT Supercup organizers to photograph an event at Kyalami

Grand Prix Circuit. I’ve always had a deep-rooted love of cars and motor racing, and this was the opportunity of a lifetime for me. Having access to the pits meant that I could spend a bit of time getting some fantastic detail shots.

The drivers and crews were all very accommodating and were obviously used to having

a photographer around. The weather played along, and even though it was cloudy, the overcast sky really enhanced many of the photos.

Many people underestimate the capabilities of the Canon EOS 1100D, and assume that it couldn’t cope with this kind of photography, but it performed really well. A higher frame rate would have been great, but I am very proud of how my EOS 1100D and kit lens coped.

One of the dangers of being around fast-moving cars is

being unaware of what is happening around you; with your face glued to the viewfinder, it is easy to forget that you could get run over, or trip over some of the gear in the pits. Being alone, I had to be mindful of where I went and what was happening around me. Moving in and out of the pits meant I had to continually adjust my camera settings. It was usually very bright outside and rather dark inside. I spent a lot of time practising my panning



02



03



04

technique on the pit wall. Using a shutter speed that was too high froze the car in place, making it look stationary, so I had to find the perfect balance between camera settings and technique to take a photo that was sharp, yet showed motion.

One of my favourite images of the day is that of the Number 73 Carrera RSR at the end of the pit lane. I like how that car's colour contrasts that of the building behind it. The low angle of the shot really draws the eye to the car. 📷

“ A higher frame rate would have been great, but I am very proud of how my EOS 1100D and kit lens coped ”

01 PIT LANE

The slower speeds made for a great opportunity to get creative

Lens Canon EF-S 18-55mm f/3.5-5.6 III Exposure 1/400 sec, f/7.1, ISO200

02 SPEEDY

I had lots and lots of practice with panning

Lens Canon EF-S 18-55mm f/3.5-5.6 III Exposure 1/250 sec, f/7.1, ISO100

03 DETAIL SHOTS

This required some positive exposure compensation

Lens Canon EF-S 18-55mm f/3.5-5.6 III Exposure 1/30 sec, f/7.1, ISO100

04 THEY'RE OFF

A shot of the entire grid before the faster cars sped off!

Lens Canon EF-S 55-250mm f/4-5.6 IS II Exposure 1/320 sec, f/7.1, ISO200

PhotoPlus FEEDBACK

Whizzing motorcars are particularly tricky to shoot, but Jan has tackled the genre with flair and skill.

Having time to practise is perfect when trying new techniques like panning. Jan used a shutter speed of 1/250 sec, which is perfect for showing movement but still rendering the car largely in focus.

MYKIT

Professional photographers reveal their top six tools of the trade they couldn't shoot without



“ I always try to give a special impression, to transport feelings or tell a story ”

WHAT DO I DO?

Henrik Spranz

Award-winning photographer Henrik loves to roam the great outdoors searching for subjects. Discover the gear he uses to get down low and close to nature. . .

I consider myself a general nature photographer, but I'm an especially big fan of butterflies because of their beauty and delicacy, and the way I can compose images with them. Flowers have caught my attention too, and when I'm doing macro work I always try to give a special impression, to transport feelings or even tell a story.

I have to mention my furry friends as well. A life without European hamsters and ground squirrels is possible,

but pointless. I've been visiting them many times and learned a lot about them and their habits. With this diverse range of subjects – including landscape photography as well – I need a wide range of equipment. This includes the incredible Canon EF 16-35mm f/4L IS USM and a sturdy SIRUI N-3204X Master tripod and SIRUI P-326 monopod for holding a big telephoto lens.

There are a lot more things I should mention, such as different diffusers and tripods with goosenecks, clamps to hold them, and beanbags in

various different sizes for ground-level shots when shooting wildlife or macros. The point of view always plays a big part in macro and wildlife photography.

I don't use stacking in my macro shots as I'm using a low magnification ratio anyway. This gives me room for composing my images, including the habitat, or using the negative space for something special. I keep my post-processing to fine-tuning nowadays, to comply with the rules for international nature photo competitions. 📷



Henrik Spranz

LIKE many others, I got started with photography by buying a camera to document my travels. This happened in 2006, and a lot has changed since then. Though I'm still a software developer, photography consumes my spare time and I'm roaming in nature every weekend. I've submitted images to competitions such as Outdoor Photographer of the Year, International Garden Photographer of the Year, World Photography Awards and many others. Some of my images have been awarded or commended.

www.spranz.org
www.fotomat.500px.com

IN HENRIK'S BAG



01

Canon EOS 5D Mark III

WEB: www.canon.co.uk

THE Canon 5D Mk III was just what I was looking for. Some years previously I had the 7D and the 5D Mk II – both of them specialists for sport and wildlife or landscape and portrait respectively. The 5D Mk III is good for all of it!

02

Canon EF 135mm f/2L USM

WEB: www.canon.co.uk

THERE are moments in my macro work when even the 180mm f/3.5 is too slow. Sometimes I want bokeh circles for the rising sun bigger than f/3.5 can deliver. With the 135mm f/2 shooting open wide and using an extension tube I still have good sharpness and contrast, and get a wonderful bokeh, with a giant disc of the sun in the background.

03

Berlebach Mini Tripod with Levelling

WEB: www.berlebach.de

I NEED a lightweight, sturdy tripod with which I can get as low as possible for macro. To get even lower with my camera on the sturdy Berlebach I use it in combination with a MENGES PAN-01 panoramic head and a MENGES FNR-140 Nodal Slide on a very strong SIRUI K-30X ball head. I also use the MENGES 5D3 L-Shaped Quick Release Plate, which is very convenient when there is no tripod collar for the lens.

04

Canon EF 400mm f/2.8L IS USM

WEB: www.canon.co.uk

WHAT on earth would I do without this lens? I would have problems shooting one of my favourite subjects: European hamsters. These lovable guys are active at night but begin their foraging in the early evening. This lens has an incredibly accurate autofocus – even with fading light – and it's tack sharp wide open. Sometimes I ask myself if it's worth the effort to carry around this very heavy lens, but looking at the pictures I say: yes!

05

Canon EF 180mm f/3.5L Macro USM

WEB: www.canon.co.uk

WHEN Canon Europe made a movie about my photography (see <http://bit.ly/2q6bHHV>) I had the opportunity to shoot with this lens and instantly fell in love with it. It's incredibly sharp wide open. It's a fast lens and renders colours so beautifully. Even shooting against the light it doesn't suffer as much as most other lenses from chromatic aberrations and other effects.

06

Custom plant clamp

I USE an enormous variety of plant clamps and multipurpose holders and I'm always looking for new and better options. This very small one holds grass and similar things. I'm using this compact Cullmann Magnesium Copter tripod with a ball head together with a deconstructed gooseneck from an 'extra hand' soldering tool and an adapter for screwing them together.

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CANON SCHOOL

Your ultimate photographic reference guide to the complete Canon EOS DSLR system

DIGITAL SLR ESSENTIALS

PAGE 82

Turn your photos into top-quality prints and flog them through shops, cafes and galleries – we show you how



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CANON EXPERT

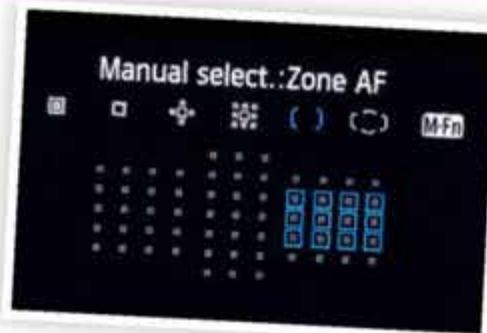
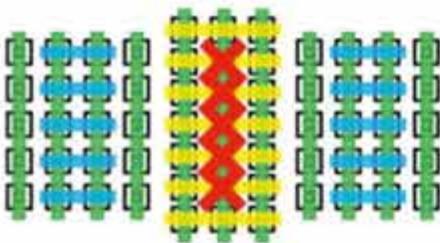
Peter's been a passionate photographer for well over 20 years. He's worked on *PhotoPlus* since the very first issue, back in 2007, and has been the magazine's editor for the past six years.



SOFTWARE SOLUTIONS

PAGE 86

We delve deep into your DSLR's AF sensor and show you how to set up your Canon so that it focuses snappily onto the right things



WITH **PhotoPlus** EXPERT

MARCUS HAWKINS

PHOTO EXPERT

Marcus has been passionate about photography for more than 25 years. A former editor of our sister publication *Digital Camera*, he has written about photography for Canon and Jessops, and uses a Canon EOS 5D Mk III.



EOS S.O.S

PAGE 91

Brian muses on the usefulness of your camera's settings being embedded in EXIF data, amongst other stuff



WITH **PhotoPlus** EXPERT

BRIAN WORLEY

CAMERA EXPERT

Brian has unrivalled EOS DSLR knowledge after working for Canon for over 15 years. He now works as a freelance photographer and photo tutor in Oxfordshire.



MAKE CASH WITH YOUR CANON

In this latest instalment of the series, we look at how you can sell your photos as prints in galleries and other venues

PhotoPlus EXPERT

PETER TRAVERS

CANON EXPERT

Peter's been a passionate photographer for well over 20 years. He's worked on *PhotoPlus* since the very first issue, back in 2007, and has been the magazine's editor for the past six years.



Sell prints, cards, and more...

We explore how you can make money from great Canon photos you've already taken

Even in a digital and online age, there is still a huge market for traditional prints for people to hang on their walls. Pictures give a home a personal touch, an office a human feel.

Most people don't have the technology, or know-how, to make great prints from digital files and will still prefer to buy pictures for their walls ready-made, with or without frames. So, in part three of our series, we'll take a look at how and where you can start selling prints of your images, what initial costs you're likely

to face, and what eventual returns you can expect.

Finding a market

There are several options when it comes to finding places to sell your prints. A popular one is to approach shops and cafés, offering your prints on a consignment basis. This is an agreement where you provide the prints to hang in the shop, and then split the money when the item sells. The split of the selling price can be anywhere between 70/30 (where you keep 70 per cent and the shop takes 30 per cent) and 50/50.

When considering this approach you need to choose the right venue for your work. Look for places where there are plenty of people who are likely to buy prints. Tourist areas are a good place to start as they have a steady flow of people passing through. Make sure that the venue has decent lighting and space to display your prints, as you don't want them to just be stuck in a dark corner of the shop or café.

Once you have come to an agreement with the venue, it's vital that you have a contract written up before handing over any of your prints. Along with the commissions and percentage split of the selling price, this should include full contact details for both parties, a list of the prints and selling prices, how long the contract will last, how and when payment is due after a sale, and details of who is responsible for insuring the items while they're on display.

Along with shops and cafés, galleries can be great places

to sell your prints on the high street. It's worth doing a bit of research when looking at which galleries to approach to check whether your images and subject matter are suitable for a particular venue. But while some galleries specialize in a particular media or style, many will be looking for something that complements the work they already have, rather than displaying all the same type of art.

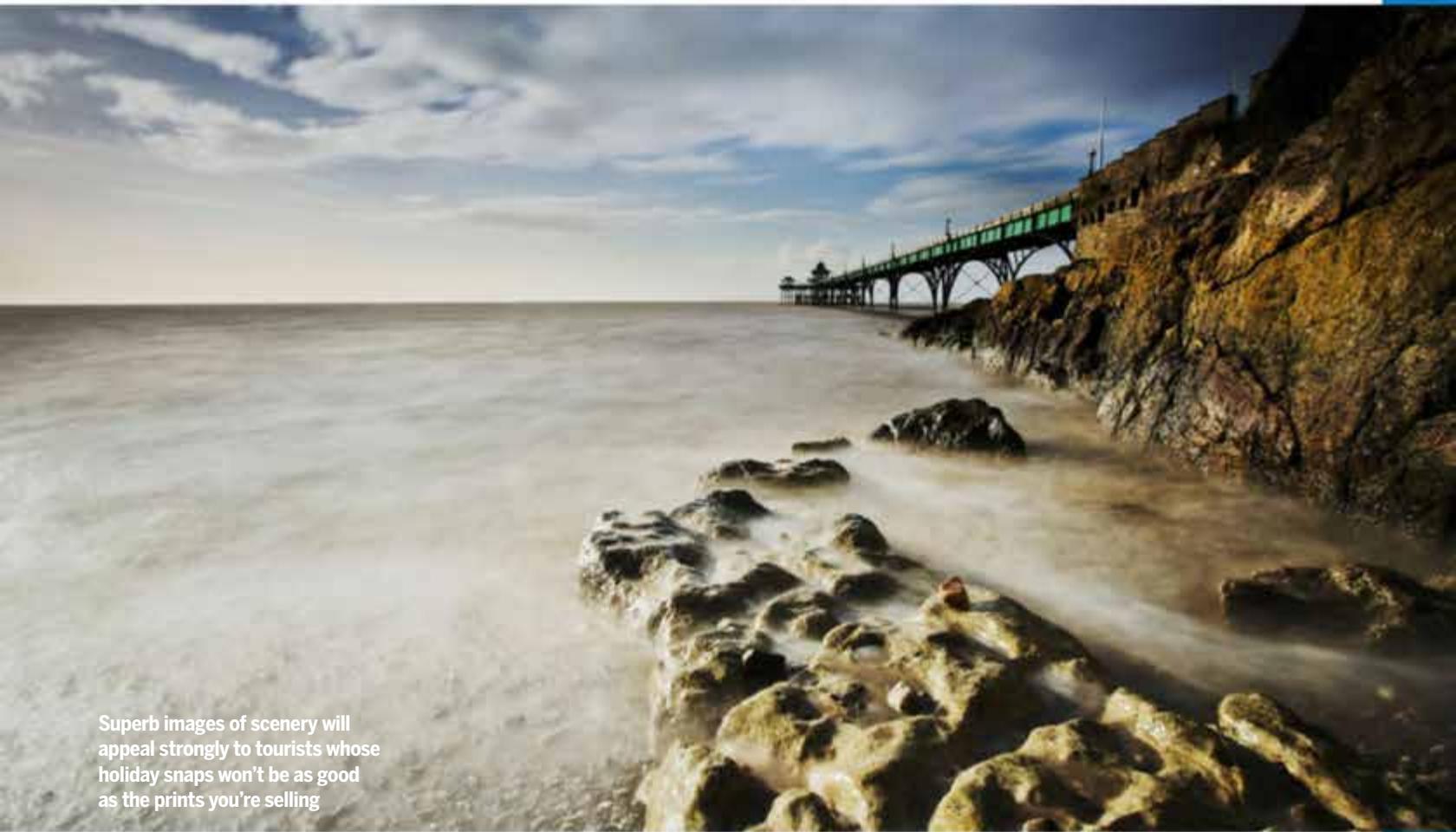
Sealing the deal

When you approach a gallery, start by arranging a meeting with the manager or owner, and take along a selection of around ten images. These can be on a computer or laptop, as they're just to give them an idea of the type of images you are producing; there's no need to get them printed at this stage. This approach will mean that you can get an idea of which images the gallery manager thinks are saleable. Many galleries will also be able to help with framing.

“ If you want complete control over the sales and marketing of your prints, without the cost of setting up your own shop, selling at art/craft fairs might be the answer ”



When selling your photos via a café or restaurant, be sure to choose images likely to appeal to the sort of customers the venue attracts



Superb images of scenery will appeal strongly to tourists whose holiday snaps won't be as good as the prints you're selling

Along with researching the suitability of the gallery, you should check what the gallery's terms and conditions are for displaying and selling your work. Some will require you to pay a monthly fee to 'rent' the wall space, although this varies with different galleries. Then you will also have to pay a commission and/or a percentage of the total selling price to the gallery. The fees and amounts charged by the gallery will vary greatly between different venues, so make sure that you will still be making a profit on each piece once they have taken their cut.

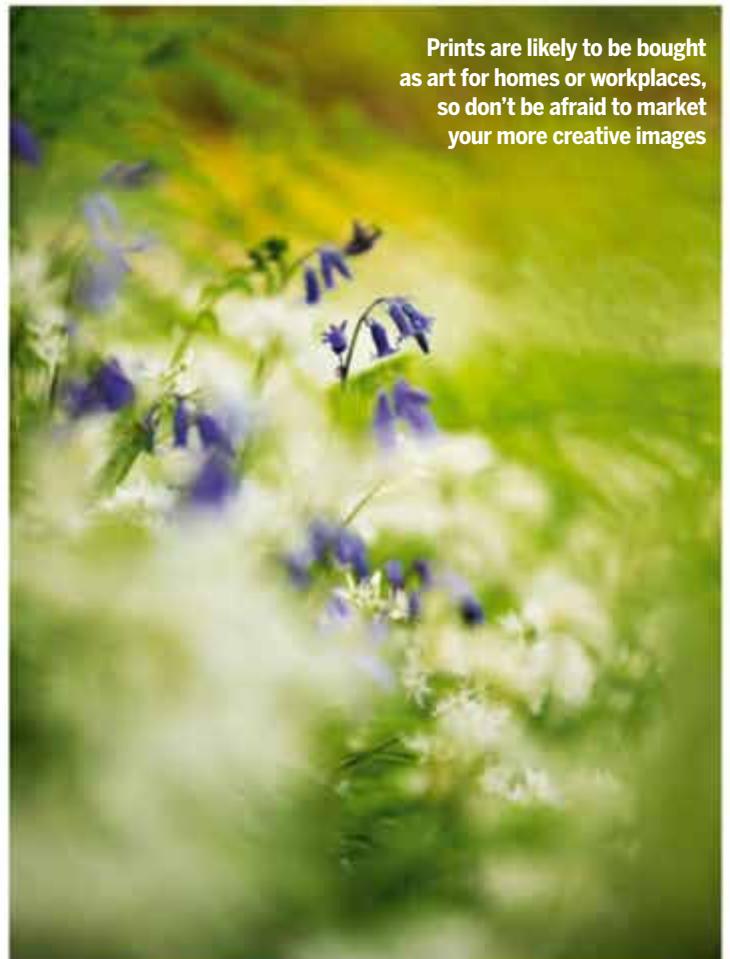
If you want to have complete control over the sales and marketing of your prints, without the cost of setting up your own shop or gallery, selling at art/craft fairs might be the perfect answer. Although this option is cheaper than a shop you'll still need to factor in the fee charged by the organizer of the fair and the cost of getting you and your prints to the event. You will need a way

of displaying your wares, too, such as a table and display stands. This option can take a lot more of your time than simply displaying your images in a shop or café, as you'll need to be there to set up the stall, sell the prints and pack away at the end of the day.

Only the best

When picking which images you are going to print, mount and frame, make sure that you only choose your best (and most saleable) shots. Ask yourself whether you would want to hang it on *your* wall, and seek out the opinions of friends or family (especially non-photographers) to help you. Often photographers can be too concerned with the technicalities or style of the image, or even whether it's an image they would have liked to have taken themselves, whereas someone who isn't into photography will judge an image solely on its merits.

Whether you are selling a postcard on a market stall or a framed print in a high street



Prints are likely to be bought as art for homes or workplaces, so don't be afraid to market your more creative images



Don't crop unframed prints to odd ratios – many people will want to buy ready-made frames in standard sizes

gallery, you want to make sure that your work is printed and presented to the highest possible standard. So, first of all, don't be tempted to skimp on the printing.

If you are thinking of printing your own images you'll need a high-quality inkjet printer. The best models use pigment-based inks for better longevity than dye-based versions, and also have a gloss optimizer option for the best results when using glossy papers. You'll get more consistent and reliable print results by calibrating your screen using a device such as the Datacolor Spyder.

The alternative is to have prints made by a commercial laboratory. This doesn't offer the same control as you have when printing at home, and you may have to wait a few days for the prints, but if you are just starting out and need a selection of prints made, it will be cheaper than buying a printer and paper.

Once you have made your prints you need to mount and



If you're printing photos yourself, you'll need a top-notch printer, like Canon's imagePROGRAF PRO-1000 that prints up to A2 in size

frame them. Again, this area can be crucial to successful sales, so you need to think about it carefully. The choice will be a personal one, but to maximize the appeal of your images it's generally best to avoid ornate or colourful frames, as these will only appeal to a small percentage of buyers. It's much better to use simple, plain frames, and also to have a selection of mounted but unframed prints to offer, so that the buyer can always choose their own more personal frame if they want.

Pricing your work

The first thing to consider, when pricing your work, is the basic cost of producing

Not everyone is willing or able to buy a huge framed print, so try having some smaller mounted prints, postcards or even calendars on offer as well

I DID IT!

Ed Collacott, successful fine art print, book and calendar photographer

"I HAVE been very fortunate over the past 25 years to have made a good living from what has always been a deep passion of mine: our landscape. I sell my work from a stall and online – mainly fine art prints, but also greetings cards and a book. I also produce a large-format panoramic calendar of British landscapes each year.

To be successful you have to know your market. If your art is

conceptual or has an intellectual base then art galleries are the answer. In my case I sell to the general public so it has to be accessible; people have to be able to connect with it. The most successful images are those that create atmosphere, a sense of place and have a depth and character that lifts it above the ordinary. It's a competitive market, so ensure your images stand out.

A common mistake is to show too many images. That's fine if they are all outstanding, but any weak ones will dilute the overall impression.

Pricing is never easy, but don't undersell – just be realistic. A good starting point is the cost of materials plus at least 100 per cent. Just think how much time and effort has gone into each image."

See Ed's landscape images at www.fineartphotographs.co.uk



each print. This will include printing costs, mounting, framing and any postage or transport costs you need to pay. Once you have worked out your costs, you need to factor in how much profit you expect to make.

This will give you a starting point to price your work, but there are some other factors to take into consideration. If you are selling through a third-party, such as a shop or gallery, then they will take a percentage of the selling price. Then there's the final factor, which is how much people are willing to pay. This is the most difficult part of the equation, so it's worth spending some time looking around at other shops, stalls or galleries to get an idea of what they are charging. The prices can vary immensely, depending on the type of people that are visiting the area, the type of work you are selling and also the overheads of the business. A business based in a high street in a popular and affluent tourist location will often have work priced much higher than one that is in a less popular part of town, just to cover the extra costs. So, take into account where your work is being sold when deciding on the final price.

Wherever you are selling your work, it's worth looking at having a range of different sizes, prices and types of



If your work is strongly conceptual or challenging, an art gallery might be the best venue for selling your prints

work that you're offering. Not everyone is willing or able to buy a huge framed print (especially if they are on holiday), so as well as framed prints, try having some smaller mounted prints, postcards or even calendars on offer for these customers.



Thinking of selling your photos via a fair or street stall? The images will need to be instantly accessible, to grab the attention of passers-by

How long will it take?

Producing, framing and selling prints is going to take some time and incur more upfront costs than many other ways to make money from your Canon, but that doesn't mean that it's not a good idea. Getting your initial prints made, mounted and framed will take a couple of weeks. Then you'll need around six months to start recouping your costs by selling the prints through the various outlets. Art/craft fairs often result in the quickest sales, as they tend to attract large amounts of people looking to buy art or photography, while selling through cafés and shops can take longer, as a lot of their customers won't be in the market to buy prints. But as long as you're prepared for the long haul, by building up relationships with different

DOS AND DON'TS

Do

- Make some test prints at home to check sharpness, contrast and image quality, even if you are having your images printed commercially.
- Make sure that your contact details are included on the back of the print, so that people can contact you if they or their friends would like other prints.
- Have a good range of print sizes available, as not everyone has the space for huge prints.

Don't

- Use very ornate or colourful frames for most of your images, as this will limit the market to those who like this type of frame.
- Try to print your images too large. To ensure the highest quality prints make sure that the image resolution is at least 300dpi at the print size that you want to make.
- Forget to calibrate your monitor, or to use the correct colour profile for the printer and paper that you will be using.

outlets and customers it's possible to make print sales through these outlets a viable moneymaker.

What can you earn?

This will be dictated by your profit per item, and the volume of sales. The profit on a small print, postcard or calendar is often very small, so you will need to sell tens – or even hundreds – of them to make it viable. While the profit on a large framed print can be much greater, you are much less likely to sell large numbers of these.

If you are just starting out you will be doing well if you make a few hundred pounds' profit in the first six months. But selling prints is a business that can be grown gradually, and in time it's possible to make a good income from a wide range of sources. 📷

DIGITAL SLR ESSENTIALS

This issue we look take a closer look at AF points and how to customize the way they're selected for faster focusing

PhotoPlus EXPERT

MARCUS HAWKINS

PHOTO EXPERT

Marcus has been passionate about photography for more than 25 years. A former editor of our sister publication *Digital Camera*, he has written about photography and cameras for a wide range of clients, including Canon and Jessops, and uses a Canon EOS 5D Mk III.



Awesome AF points

Autofocus setups and shortcuts to speed up your photography

Your EOS DSLR's three autofocus (AF) modes control how the camera focuses – whether it locks on or continuously adjusts the lens when it detects movement – but the AF points determine where the camera focuses, and how precise it is too.

As you might expect, the greater the number of AF points there are and the wider they're spread across the picture area, the easier it is to focus on subjects that aren't in the centre of the frame. A densely-packed array of AF points can improve the chances of getting sharp shots in sports and wildlife photography, as a moving subject is less likely to be in part of the frame that isn't

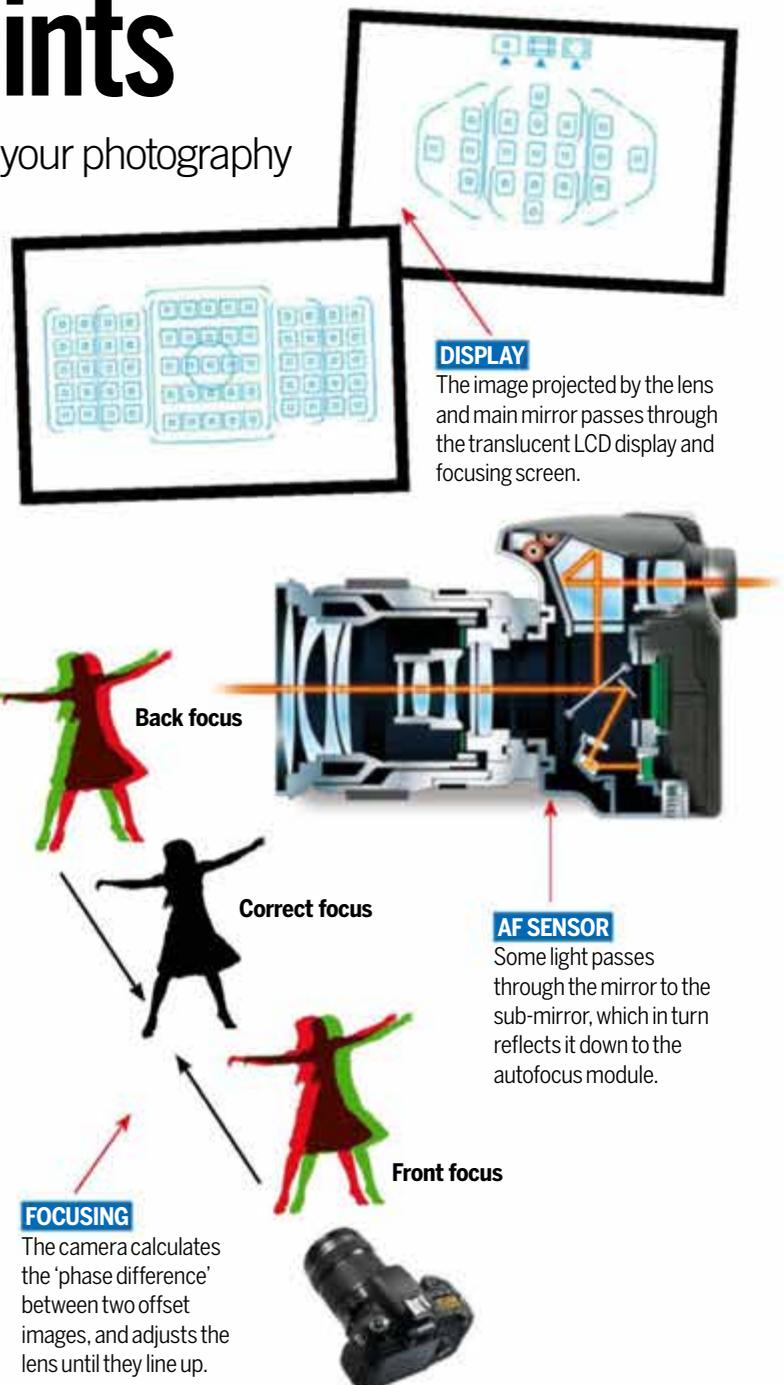
covered by an AF point. It also means that you're less likely to have to adjust the camera position to focus before recomposing a shot. This is beneficial when shooting close-up with a shallow depth of field, where using the focus-and-recompose technique can lead to blurred shots.

You can choose to use just one of your camera's autofocus points or all of them. Light them all up and the camera will automatically choose the focus point(s) that correspond with the area it believes should be in focus. Typically, this is the closest part of a scene or subject, or the area of highest contrast; something you need to bear in mind if all the AF points are active as the camera might not focus where you're expecting it to.

HOW AUTOFOCUS WORKS

What is phase-detection AF?

NOT ALL of the light that enters the camera is reflected up into the viewfinder: some of it is reflected down to the AF module that sits below the sensor. This light is separated by a microlens, which produces a pair of offset images on the autofocus sensor. The distance or 'phase difference' between the two images is measured and the camera determines whether the lens needs to be focused closer or further and by how much, in order to make the two images line up. It's a fast system, but relies on mirrors, microlenses and AF sensors being in perfect alignment, so there's some room for error. If you notice that a lens is consistently being focused in front of or behind the target, try using AF microadjustment on a compatible Canon body to compensate.



THE AF SENSOR MODULE

Understanding the types of AF points

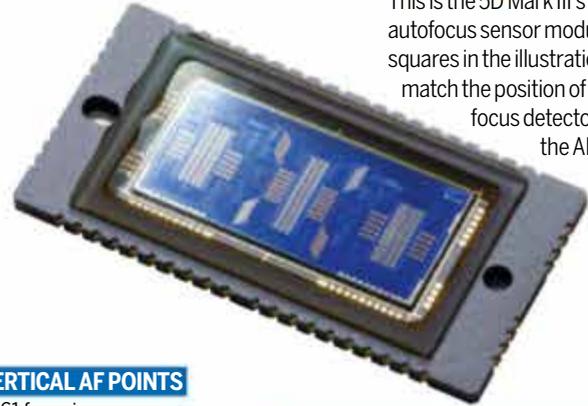
Faster lenses can unlock additional features of the focusing sensor

It's not just the number of AF points that contributes to the speed and accuracy of a camera's autofocus, it's their sensitivity and precision too. Standard AF points have their sensor arranged either vertically or horizontally and are effective at detecting lines of contrast that 'break' the line of the sensor. They can struggle if the lines run parallel with the sensor, and this is one of the reasons that autofocus can fail, with a lens 'hunting' back and forth to find an 'edge' to bite onto. More advanced 'cross-type' AF points combine both horizontal and vertical sensors, while dual cross-type sensors also detect diagonally for greater precision. All EOS DSLRs have at least one cross-type AF point, while the lion's share of AF points in high-end bodies are all cross-type – although the actual number available varies according to the lens that's attached to the camera. You'll

find a list of lenses and the AF points they unlock in your camera's manual. Typically, you'll see lens apertures listed alongside cross-type AF points in a camera's specifications; this is the maximum (largest) effective aperture a lens requires to unlock the AF point's additional precision. For example, the 1300D's centre AF point is cross-type at f/5.6, while five of the 5D Mark IV's cross-type AF points become dual cross-type at f/2.8. It doesn't make any difference if you dial in a different aperture on the camera, as this aperture in the lens doesn't change size until a picture is taken. It's the maximum effective aperture of the lens that counts. For example, if you attach a 70-200mm f/2.8 lens to a 5D Mark IV and you get dual cross-type goodness; add a 2x teleconverter (which reduces the maximum aperture by two stops, to f/5.6) and it reverts to single cross-type.

AF SENSOR

This is the 5D Mark III's autofocus sensor module. The squares in the illustration below match the position of the focus detectors on the AF sensor.

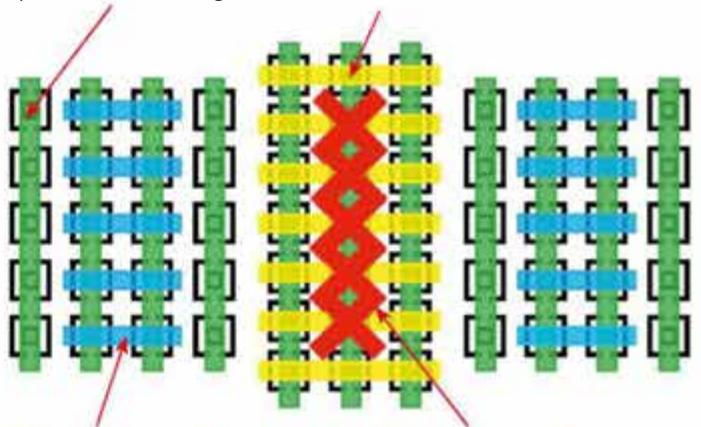


VERTICAL AF POINTS

All 61 focusing sensors can detect horizontal lines with lenses that have maximum apertures of f/5.6 or larger.

MORE SENSITIVE CROSS-TYPE POINTS

The cross-type sensors in yellow can detect vertical lines with slower f/5.6 lenses.

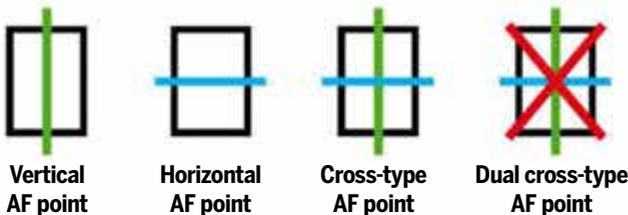


HORIZONTAL POINTS

In addition to detecting horizontal lines, the points marked in blue can detect vertical lines with f/4 lenses – so they offer more precise cross-type focusing.

DUAL CROSS-TYPE

On top of their f/5.6 horizontal and vertical detection, you can unlock a diagonal cross pattern for greater focusing precision with f/2.8 or faster lenses.



Make sense of 'f/8 autofocus'

Teleconverters reduce the amount of light available for the autofocus points

CAMERAS THAT support 'f/8 autofocus' are wise investments for sport and wildlife photography. This type of work often requires 500mm and 600mm f/4 supertelephotos fitted with 2x teleconverters in order to get frame-filling shots of distant subjects. But this combination results in an effective maximum aperture of f/8. The same thing

happens when a 1.4x teleconverter is added to a slower telephoto lens, such as Canon's 400mm f/5.6. A maximum aperture of f/8 is too slow for effective autofocus, as there won't be enough light available for the majority of AF points. But increasingly, high-end EOS cameras are including focusing sensors that *do* work at f/8. The 5D

Mark IV has 21 f/8 cross-type points, for instance. The feature was even added later to the 5D Mark III via a firmware update, which was initially released without this ability. In this case, only the centre AF point works at f/8, and while it performs very well with stationary subjects, I've found that it to be a bit shaky at tracking moving subjects.



For autofocus with long lenses and teleconverters you'll need a DSLR with f/8-sensitive AF points

When to use single AF points or groups

You don't have to use all the AF points – choose the right AF area selection mode for the scene

Advanced EOS DSLRs that have a large number of AF points, such as the 7D Mk II (65 points) and 5D Mk IV (61 points), can make it easier to track small and fast subjects in AI Servo mode, with the AF point array acting like a net across the scene when all the AF points are active.

The potential pitfall with such a wide spread is that the AF system might lock onto another part of the scene, especially if it's more detailed than the subject or closer to the camera.

You can, of course, override the automatic AF selection and manually choose a single AF point instead, but trying to

keep one of the small squares trained on a tiny subject moving erratically can be, well, trying. To get around this you can choose from a selection of different-sized AF areas, from an AF Point Expansion mode that uses the selected AF point and those surrounding it to focus, to a Zone AF mode that sees the AF point array split

into predetermined groups. Or you can get even more precise with Spot AF, which measures an even smaller area than Single Point AF to set focus.

Similar to selecting a single AF point, you have to manually choose the main AF point or zone with all these alternative setups – you can find out how to do that below...



Single-point Spot AF

This pinpoint option's useful when the area covered by a normal single AF point would lead to focusing errors – such as locking onto the cage bars here



Single-point AF

For portraits, select a single AF point that lines up with the nearest eye, or is close enough so that you can quickly lock focus and recompose



AF Point Expansion

This makes a good choice when photographing active subjects that would be too hard to keep track of with a single AF point



Zone AF

A sound choice for keeping track of subjects that will be moving across relatively 'clean' foregrounds and backgrounds, such as birds in flight

Smarter AF point selection

How to move the AF point or zone around the viewfinder display

TO MANUALLY select an AF point or zone, you need to be shooting in one of the Creative Zone modes (Av, Tv, M or P). Dab the AF Point Selection button, at the top-right of the back of the camera; the display will illuminate in red and you can cycle through the different AF area selection modes by repeatedly tapping the M-Fn button next to the Main dial, or by using the

dedicated AF Area Select button/lever on the 5D Mark IV/7D Mark II.

With the display active, you can move the selected AF point or Zone. The cross-keys or control dials allow you to move an AF point vertically or horizontally or cycle through the zones, while the Multi-controller joystick on compatible EOS bodies can be customized to give direct

control over the AF point or zone without having to press the AF Point Selection button first. Any AF points that offer just basic horizontal line detection will blink as a warning.

Cameras with large amounts of AF points offer shortcuts to speed up AF point selection. For instance, in the AF menu you can reduce the

number of manually selectable AF points, or customize the amount of AF area selection modes available so that you can cycle through the options quicker.



DUAL PIXEL AF

The Dual in the crown

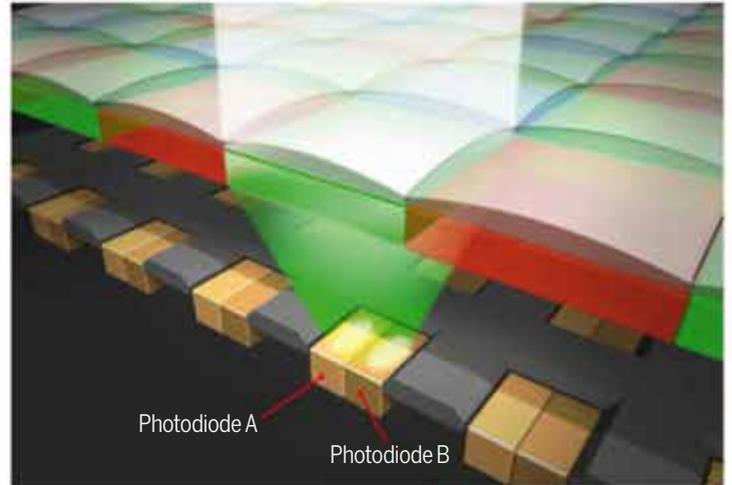
Canon's Dual Pixel AF brings phase-detection autofocus to Live View

Live View autofocus has long been seen as the poor cousin to autofocus using the optical viewfinder. In Live View mode, the mirror inside the camera has to flip out of the way so that the imaging sensor can be continuously exposed to light in order to display an image on the rear screen. Without the mirror in place, no light reaches the camera's phase-detection AF sensor, so the autofocus is achieved by measuring contrast levels on the imaging sensor itself. It's a much slower system than phase-detection AF, but Canon changed everything with the launch of Dual Pixel CMOS AF in the 70D.

With this system, each pixel on the imaging sensor is split into two photodiodes: A and B. They are read together to

record an image, but separately in order to give fast and continuous autofocus; each pixel essentially becomes a phase-detection AF point.

The 5D Mark IV's Dual Pixel Raw files take it a step further. These files actually contain two images: one is made of the combined A+B image data, and the other consists of the image data from only the A photodiode. Canon's Digital Photo Professional has a Dual Pixel Raw Optimizer that can decode the depth information that the two offset images provide, enabling you to make microadjustments to where the sharpest point is. Don't expect to be able to refocus the shot to any great extent, but rather shift the position of maximum sharpness from an eyelash to the eyeball in a portrait.



Dual Pixel Raw files are twice as big as normal Raw files and can only be taken full advantage of in DPP. You'll also get the most noticeable results with longer focal lengths and wide apertures

Before



After



School tip Instant focus fix

Try the Orientation Linked AF Point shortcut

BURIED in the AF menu or custom function options of some EOS DSLRs, including the 80D and 5D Mark IV, is a setting called Orientation linked AF point. By default, the active AF point stays in the same position whether you're holding the camera horizontally or vertically, but with Orientation Linked AF Point activated you can have the AF point jump to a

preselected position when you rotate the camera. You can even have the AF area change too, such as switching from Zone AF for a horizontal shot to single-point AF for a vertical one. The camera remembers the last setting used for each orientation, so there's no faffing around with menus. It's handy for when you're shooting wildlife or an



event such as a wedding, as you can have the AF point automatically move towards the top of the display, close to where a subject's head or eyes will be, as you turn the camera vertically.

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Colours: Black, Red

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PhotoPlus EXPERT

BRIAN WORLEY

CANON PRO

Brian is a freelance photographer and photo tutor, based in Oxfordshire. He has unrivalled EOS DSLR knowledge, after working for Canon for over 15 years, and is on hand to answer all your EOS and photographic queries www.p4pictures.com



The EOS 760D features a top LCD panel and the Mode dial is located to the left of the viewfinder, like other mid-range and advanced cameras

What is difference between the 750D and 760D, apart from the top LCD?

John Clark, via email

BRIAN SAYS... EOS 750D and EOS 760D are indeed all but a pair of twins – the principal specifications are the same (the only internal difference you may notice is the addition of the electronic level on the EOS 760D).

However, the two cameras have differing control layouts. The EOS 750D uses the basic cross keys arrangement on the rear of the camera, while the EOS 760D takes its control layout from the mid-range cameras, with an additional Quick Control dial on the rear. This speeds up exposure compensation in auto exposure modes and setting the aperture value in manual mode.

Canon recently introduced the EOS 800D and EOS 77D

as successors to the EOS 750D and 760D respectively. The new cameras have effectively borrowed much from the EOS 80D; image sensor, AF sensor, metering and dual pixel AF for movies. These new models are a step up in capability from the EOS 750/760D, but retain the same control layout differences.



EOS 760D gains a Quick Control dial, similar to the layout of mid-range and professional models



Choose the best focus mode for the type of photos you want to make

Is there any disadvantage to using AI Servo autofocus mode for all shots?

Stephen Philips, Devon

BRIAN SAYS... It helps to understand the three focus modes on EOS cameras so that you can understand the most appropriate one to use. One Shot AF is for static subjects. You can use a single or multiple AF points, but when you press the shutter the camera focuses on the closest subject and then the focus locks and is held while the shutter button is pressed at the half-way position. This allows you to recompose the frame if needed.

AI Servo AF is for moving subjects; press the shutter halfway and the camera starts focusing, but does not

stop when focus is achieved it keeps tracking. More advanced cameras have a large range of settings to refine how subjects are tracked in AI Servo mode.

AI Focus AF tries to be the best of both; the focus locks on the subject, like One Shot AF, but if the subject moves the camera switches to AI Servo tracking. While this can be useful when starting out, the main disadvantage to AI Focus is that the camera can switch modes when you don't want it to, and recomposing can also sometimes make the camera switch to AI Servo mode, so use it with caution.



AF Case 3 is usually good for birds in flight against a plain background

Which AF Case do you recommend for photos of birds flying on a 7D Mk II?

Ted Osborne, Derbyshire

BRIAN SAYS... The six preset cases include descriptions for sporting applications, but not birds in flight. Where the background is mostly sky then Case 3 is the one to choose.

Case 3 increases the tracking sensitivity and acceleration/deceleration tracking parameters, ensuring that the camera will focus on any subject that is covered by your selected AF points. If there are several birds in the same frame and covered by the AF points then the camera will switch to the closest one quickly.

You may find increasing the AF point switching parameter helps if you have a large number of active focus points in use and find it difficult to follow the flying bird. As your skills improve, try switching to one of the Zone AF focus areas.

When would ISO50 be used and does it improve the picture quality?

Charles Radcliffe, Northumberland

BRIAN SAYS... Most of the EOS 5D and EOS-1D series offer the option to extend the ISO range to include ISO50, but it's not part of the standard ISO range for a reason. When the ISO is set to 50 there's a reduction in the dynamic range that the camera can capture.

However, for long exposures ISO50 will help lengthen the time that the shutter is open, smoothing out the

movement of water or people, for instance. I have also set it to enable me to use a slower shutter speed and avoid using high speed sync with flash in daylight.

Choosing ISO50 for this action shot reduces the shutter speed, maximizing the power of the fill-in flash



Why does my EOS 5D Mk IV only have a one-shot buffer when set to Raw?

Jane Wilson, Jedburgh

BRIAN SAYS... The speed of memory cards affects the size of the buffer, however there are some in-camera settings that have a drastic effect. I suspect you have digital lens optimizer (DLO) turned on; this reduces the buffer to a single shot on my camera, regardless of the card size or speed.

What's the point of adding a battery grip on the EOS 750D?

Alicia King, Leicester

BRIAN SAYS... Battery grips, like the BG-E18, have an additional shutter release and Main dial, which is more comfortable for shooting portraits. I find that the balance of the camera is improved by the addition of a battery grip, especially when the camera is paired with bigger and heavier lenses.

What difference is there between a Canon Extender EF 1.4x II and III?

Phillip Williams, Totnes

BRIAN SAYS... There is a small improvement in optical quality with the Mk III Extender compared to the Mk II. Also, when used on recent cameras, more AF points are capable of focusing with f/8 lens and Extender combinations. The EF 100-400mm f/4.5-5.6L IS II USM works much better with the Mk III Extender, for example.

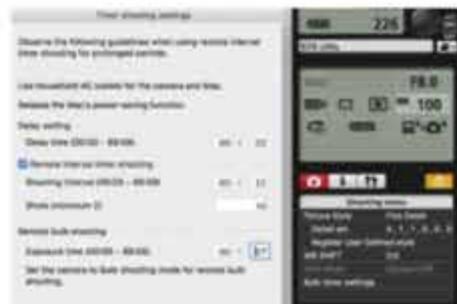


You can only zoom in to check focus in Live View if you're using FlexiZone AF

Why can't I zoom in to check focus before taking a picture in Live View?

Karen Czyrko, North London

BRIAN SAYS... When Live View is used it is possible to zoom in and check focus, but this depends on the selected Live View focus mode. On recent cameras there are three modes; Face Detection & Tracking, and two Flexizone AF methods. The default is Face Detection & Tracking, and this is the only one that doesn't allow the image to be zoomed in to check focus.



EOS Utility can control the shutter duration and interval between pictures for EOS DSLRs

How do I combine long exposures and time-lapse on my EOS 80D?

Adrian Wilks, Cambridge

BRIAN SAYS... The camera has both capabilities, but you can't combine a long exposure with time-lapse using the interval timer feature.

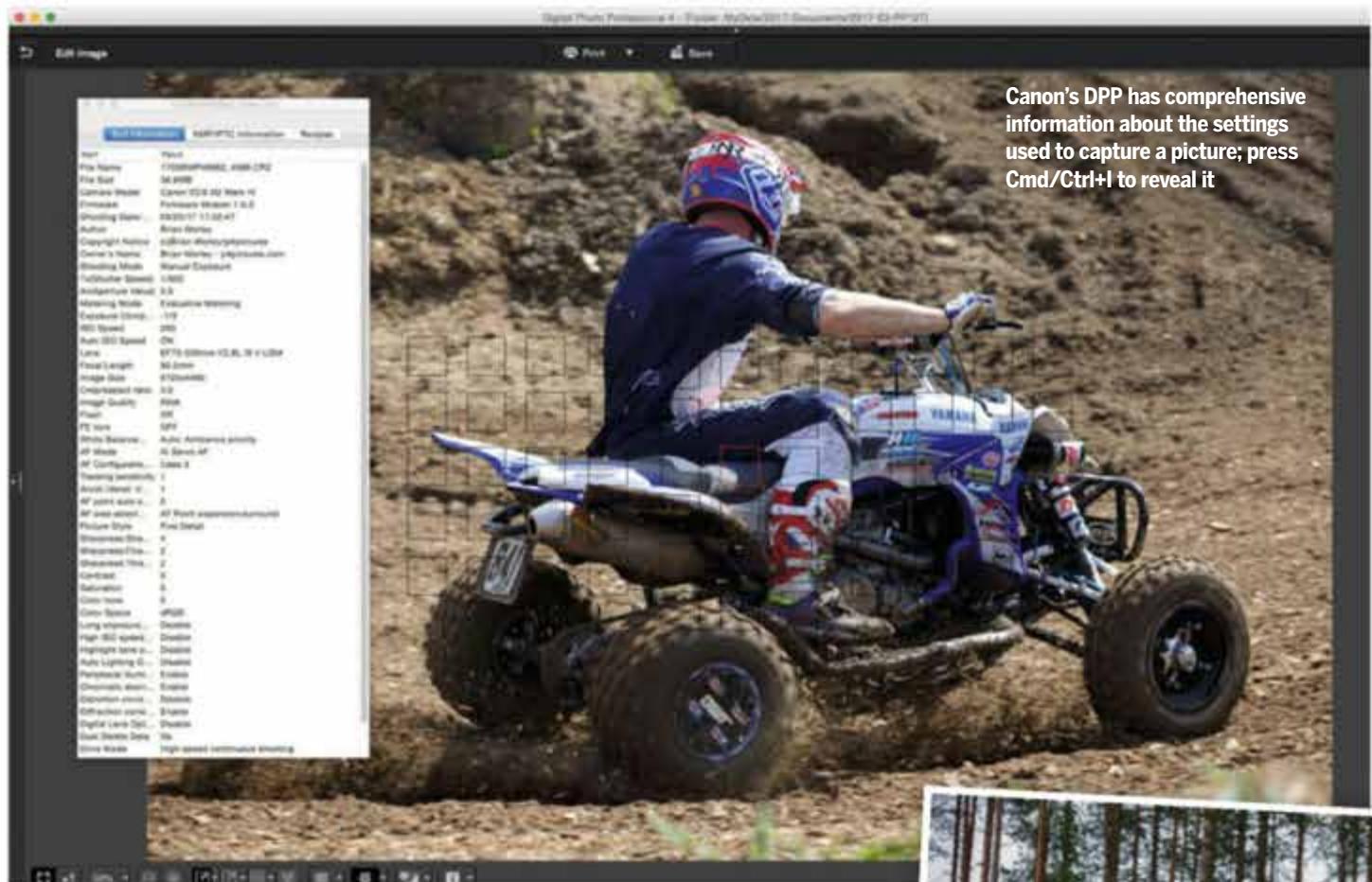
There are a couple of solutions. Canon's Timer Controller TC-80N3 will control both the interval and duration of the shutter opening. Hähnel's Giga T Pro II does the same for less money.

If it is possible to connect the camera to a laptop, EOS Utility's timer shooting function can be set to control the duration of the shutter opening time and the interval between shots.

METADATA

What's your f-stop?

Does it help to know the camera settings that were used to capture a particular photo?



Canon's DPP has comprehensive information about the settings used to capture a picture; press Cmd/Ctrl+I to reveal it

When I started out with film, there was a disconnect in time between taking a photo and seeing it as a print. I struggled to remember whether I was panning cars on a racetrack at 1/60 sec or 1/125 sec, even if I received the processed film back in a couple of days; the chances of remembering settings used months or weeks earlier were minimal.

With digital cameras the image files have always had such key information contained within their metadata. This makes it possible to see the shutter speed, aperture, ISO and focal length.

I think it is simpler to learn about photography nowadays due to being able to review images as soon as they have been taken and knowing what settings were used. However, each photographer uses the camera as a tool to capture the picture as they want,

and this is *not* saved in the metadata. Photographers work in totally different ways, depending on their skill level, subject knowledge and experience.

Experience counts

I often see new photographers struggling to get good photos when they are using manual exposure mode and spot metering, for example. They're using this because their favourite professional does, but what they lack is the 30 years' experience that allows the professional to work in that way. There may be ways of working with the automatic systems to deliver the same result, and it is easier too.

Does it matter how I arrive at the shutter speed, ISO and aperture used for my picture? I could be relying on the camera a lot or not at all, but knowing which approach I'm using may not help



It was knowing how fast the cars fly past that made 1/1600 sec the right choice for this shot

you with taking similar pictures. Photography is part art, part technical, meaning that the settings are only part of the result. I advise learning the basis for the technical decisions rather than writing them down as a recipe for a particular picture; after all, a famous chef can give you a recipe, but their food will taste very different to yours.

“ I want to take better photos, but when I use Tv, Av or M, my results are not as good as Auto mode. What am I doing wrong? ”

Kathryn Sheene, Northampton

BRIAN SAYS... Without seeing specific pictures it's hard to pinpoint problems, but if you are getting good photos on Full Auto mode then I'd suggest you give the scene modes a try as a first step in improving your photos. A combination of skill and knowing what you want to achieve helps direct your selection of settings.



Turning the Mode dial to a scene modes optimizes camera settings for a specific kind of photo

The scene modes, such as Portrait, Landscape and Sports, change how the camera tries to capture photos. Portraits of people usually look best with the subject separated from a plain unobtrusive background. One approach for this is to use a wider aperture for less depth of field. When the camera is set to Portrait scene mode, for example, it opens the aperture more than for general pictures. Sports mode, on the other hand, changes the camera settings to prioritize sharp capture of moving subjects. To do this the camera tries to increase the shutter speed to freeze action and also switches on the continuous shooting and focus tracking capabilities.



Portraits with shallow depth of field focus attention on the subject, so the Portrait scene mode will choose a wider aperture automatically

Try some shots with the scene mode and some with the camera set to Full Auto mode. Look initially at the settings of the shutter speed, and aperture for the pictures. You can view these on the rear LCD by pressing the Info button when reviewing pictures. Once you start to study what kind of settings do what, then it's time take more control with the Shutter and Aperture Priority modes, before heading to complete

control with Manual mode. The key is to review your photos – both the good and the bad – and try to see what settings have made the results. I also suggest practising your technique on less important subjects.

You can still rely on the camera to take good pictures using scene modes, but by giving it more specific direction as to the kind of shot you want to capture you are on the way to better photos.

RATE MY PHOTO

Dawn & Manny by Clarence Hemeon

CLARENCE SAYS... I took this photo while walking my dogs with my wife. I had my EOS 60D set up to try and capture photos of the dogs playing and running on the beach. I used Manual mode with Auto ISO to allow me to set a fast shutter speed and keep sufficient depth of field. Manny, our miniature Pomeranian, found it a little cold so my wife tucked him inside her coat. I took a number of shots but this is the only one where both my wife and the dog were looking at me.

BRIAN SAYS... This is a nice portrait of a dog and its owner but I think there's room for improvement with a few quick changes. Opting for a super-fast 1/1600 sec has meant that the ISO is higher than necessary; slowing to 1/400 sec would allow a cleaner ISO640 to be used. Depth of field is a little limited for



Lens	Canon EF-S 18-200mm f/3.5-5.6 IS
Exposure	1/1600 sec, f/5.6, ISO2500

such a close-up shot. Taking a few steps back and zooming in from your 50mm focal length would keep your wife and dog sharp, even at the same aperture.

Composition is a little central and I want to crop away some space on the

right; I would probably have tried a portrait orientation. In this kind of flat, overcast light the picture would benefit from a blip from the pop-up flash to put catchlights in the eyes and give the colours a bit more vibrancy, too.

Get critiqued!
Email photos to
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with the subject
'Rate My Photo'

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5D MK III

5D MK IV / 5DS / R

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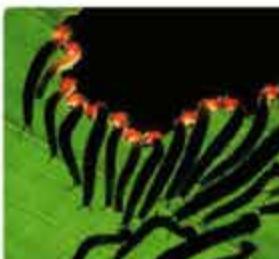
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G E A R

The latest Canon DSLR and photo gear tested. Independent advice to help you buy smarter

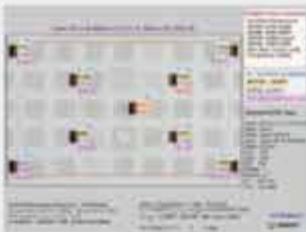


Rod Lawton
Head of testing
rod.lawton@futurenet.com

Welcome...

THIS month's highlight has to be Tamron's 70-200mm f/2.8 telephoto zoom, which proves that you don't have to pay a fortune for first-rate optical quality. Our standard zoom upgrades Super Test makes for some fascinating reading too, and if you're nursing a sore back from carrying your collection of kit, take a look at our trolley bags mini-test – perfect for the frequent traveller.

HOW WE TEST



Lens tests are carried out with Imatest suite, with specially designed charts and data analysis to test lens performance



We test cameras in laboratory conditions using DxO Analyzer hardware and software to check dynamic range and image noise

PAGE 102 TAMRON SP 70-200mm f/2.8 DI VC USD G2



PAGE 106 STANDARD ZOOM UPGRADES



PAGE 100 ROLLER BAGS



TESTS & AWARDS

WHEN IT comes to testing Canon DSLRs, lenses, photo gear and services in *PhotoPlus*, we tell it like it is. We're 100% independent and we use our in-depth lab tests to find out how kit really performs and compares. Here are our main awards...



Buy for the best combination of quality and value



Only the best of best win our coveted award

GEAR UPDATE



GEAR UPDATE

Our round-up of the latest digital photography must-haves





01 Canon EF-S 35mm f/2.8 Macro IS STM
New APS-C macro lens really shines

£400/\$400
www.canon.co.uk

CANON'S latest close-up optic boasts a typical 1:1 reproduction ratio, but at a focus distance of just 30mm it'd be hard not to cast a shadow over your subject. But fear not, as this lens is equipped with two variable brightness lights that create shadowless ring light illumination. It also packs Canon's smooth and quiet stepping motor AF, plus Hybrid IS to compensate for rotational and linear camera shake.

02 iStorage diskAshur
Supremely secure storage for your photos
From £159/\$205
<https://istorage-uk.com>

PORTABLE drives are great for on-the-go convenience, but with portability comes the possibility of your precious portfolio falling into the wrong hands. You'll have peace of mind with these drives though. Military-grade hardware data encryption fronted by a pin code keypad ensures unique access, and many drives pack advanced hacking detection tricks and even a self-destruct feature! The drives come in conventional hard drive or faster SSD designs, with capacities of up to 8TB.

03 Manfrotto Nitrotech N8
A head that's one smooth operator
£450/\$450
www.manfrotto.co.uk

RECOGNIZING that smoothness is vital for videography, Manfrotto has come up with a unique fluid video head that incorporates a nitrogen piston for precise, continuous counterbalance of camera setups weighing up to 8kg. Variable fluidity allows for judder-free pan and tilt, and there's an Easy Link connector for accessory mounting.

04 Nanguang Still Life tables
Still-life photography made easy
From £110/\$142
www.kenro.co.uk

WHETHER you're into still life-photography or want professional-looking product shots for internet auction listings, a small infinity curve can make a big

difference to image quality. Being able to light from behind or underneath the translucent surface gives a seamless, clean background for your subject. Two sizes are available, with the smaller 61x70x54cm model available standalone or in a three-head kit, including a pair of 20W colour and focus-adjustable LED lights and a single 8W dimmable lamp.

05 Rotolight AEOS
LED light for soft-yet-powerful illumination
£900/\$1000
www.rotolight.com

DESIGNED for location photography as well as video, Rotolight's AEOS can output an impressive 5750 lux at three feet, with bi-colour LEDs providing accurate colour rendering and stepless colour temperature adjustment. What's more, a flash-like HSS mode can freeze movement with a flash burst 250% brighter than maximum continuous power with no recycle time. With its low 1.5kg weight, the AEOS can easily be handheld, or there's a ball mount that'll attach to a light stand.

06 Samyang VDSLR 16mm T2.6
Samyang expands its range of cine lenses
£529/\$685
www.samyanglensglobal.com

THIS Samyang VDSLR cine lens boasts a de-clicked aperture ring for seamless adjustment, while both the aperture and focus rings are actually large gear wheels compatible with follow-focus systems that help make focus transitions smoother. Aspherical elements and Ultra Multi Coating help ensure optimal image quality.

07 Vanguard Alta Rise bags
These bags swallow more than you think
From £100/\$110
www.vanguardworld.co.uk

VANGUARD'S new Alta Rise bags have a secret weapon – you can unzip an extra 6cm of depth for carrying larger loads, then zip back up again for everyday use. The Alta Rise 28 Messenger is the smallest in the range but still packs enough space for a small DSLR or EOS M with attached lens, two further lenses, flash, accessories and a 10-inch tablet in a compartment at the back. Bigger gear can find a home in the Alta Rise 33 or 38 messengers, or there's the Alta Rise 43 Sling Bag and Alta Rise 45 and 48 backpacks.





Flight-friendly roller bags

Fed up with back-breaking backpacks or shoulder bags? Time to get your gear on a roll

W E'RE spoil for choice when it comes to carrying camera equipment, but most methods demand you shoulder the burden. So if you travel frequently, far, or simply need to carry some serious gear, put it on wheels and you won't look back.

A rolling camera bag is basically a wheeled suitcase that contains customizable dividers tailored to support cameras and lenses. Not only are they comfier than a backpack, they also tend to be tougher. You can expect

a rigid back, base and sides, and exterior scuff protection in vulnerable areas. But if that's just not rugged enough, cosset your camera in a rolling plastic hard case and it'll be near-invincible.

With wheels taking the strain, it's tempting to buy the biggest bag you can afford. However, for maximum travel versatility we've selected five designs that are just small enough to qualify as airline cabin luggage. However, size limits vary hugely across carriers, with budget airlines having the strictest rules. ☺



Calumet RC1188 Rolling Camera Case

£169/\$217
www.calphoto.co.uk

THIS is the cheapest option here, yet the RC1188 feels every bit as rugged as pricier rivals. You get reinforced outer corners, rigid sides, and plenty of scuff protection underneath, though all this toughness adds up to a 6.5kg unladen weight, making this the heaviest case on test. Its 25cm thickness could also be problematic at some check-in desks.

Inside, the padding and dividers are adequate, if not as impressive as the exterior quality. A 30cm internal width is about 3cm narrower than a case like the Manfrotto Reloader, yet that's enough to make it a tight squeeze to fit fast full-frame lenses alongside each other.

But Calumet claws back ground with features. The entire padded interior can be lifted out and has its own lid and carry handles, and the front flap expands by a whopping 19cm, effectively doubling its capacity.

PhotoPlusVERDICT

PROS: Feature-packed, yet keenly priced and still well made
CONS: Weight and size problematic for airlines; tight for some lenses
WE SAY: If you're not a frequent flier, this bag offers stunning value

OVERALL
★★★★★



Manfrotto Pro Light Reloader-55

£310/\$380
www.manfrotto.co.uk

THE Reloader-55's boxy design and 55x35x23cm dimensions fully utilize the carry-on limits of most airlines. That gives it the most practical interior layout here, only rivalled by the Think Tank bag. You can also fit a 17in laptop and 10in tablet in slots on the outside of the front flap for easy access, and the underside of the flap has plenty of pouches for filters and memory cards.

Compared to the feature-packed Calumet, the Reloader's extras are more subtle. One nice touch is an integrated zipper locking point on the side that'll secure the main zippers more elegantly than a padlock.

This bag nails the basics though. Manfrotto's extra-thick dividers are sized to fit perfectly around full-frame kit while giving unmatched gear support and protection. Outside, the tough exterior is well reinforced on key wear points and the wheels are user-replaceable.

PhotoPlusVERDICT

PROS: Excellent interior and exterior quality; good kit capacity
CONS: Doesn't come cheap; comes up a bit short on extra features
WE SAY: A serious investment, but combines practicality and quality

OVERALL
★★★★★



Peli 1535 Air Case

£279/\$221
www.peliproducts.co.uk

PELI'S entry is sized to fit within most carry-on limits, but should it need to go in the hold, this hard case will shrug off any abuse.

Hard cases are usually far from light, but Peli's Air range uses a honeycomb construction and lightweight plastic to reduce weight without compromising toughness. The result is the 1535 Air weighs less than the Calumet and Tenba bags.

A full foam interior is easily customized to suit your gear and offers great padding, though it's tricky to adapt to differing kit loads. Peli does offer a customizable divider set instead, albeit at extra cost.

Other drawbacks include a handle that extends around 10cm less than the other bags, meaning the case is more prone to clipping your heel while walking. The hard utilitarian design won't suit all occasions, and you can forget extras like laptop or tripod pockets.

PhotoPlusVERDICT

PROS: Ruggedness and gear protection with no weight penalty
CONS: High UK price; hard-core ruggedness compromises versatility
WE SAY: Offers max protection, but sacrifices storage and style to get it

OVERALL
★★★★



Tenba Roadie Universal

£265/\$325
www.tenba.com

RIGID and robust, Tenba's Roadie features a weatherproof ballistic nylon exterior – reinforced in vulnerable areas – plus superb handles all round and user-replaceable wheels.

Size-wise, a 51cm height makes the Roadie a shade shorter than the Manfrotto and Think Tank bags, but helps ensure it can stay with you as cabin luggage. You'll still be able to carry a couple of bodies and up to eight lenses, with enough width to fit typical full-frame lenses three abreast. Ample interior padding offers good kit protection, if not quite up there with the sumptuously appointed Reloader-55.

Out on the front panel there's an easy-access slot for a 17in laptop, along with a well-designed tripod attachment system. Round the back, a rear pouch containing a steel security cable can tether the bag with an optional padlock.

PhotoPlusVERDICT

PROS: Tough and exudes quality; good kit and accessory storage
CONS: Rather heavy; not quite as spacious as some rivals
WE SAY: The Roadie Universal is a very solid all-rounder at a fair price

OVERALL
★★★★



Think Tank Airport TakeOff V2.0

£360/\$370
www.thinktankphoto.com

RECOGNIZING that wheels aren't always the best mode of transport, the TakeOff is a roller bag and backpack in one. Simply open the rear pouch to reveal two backpack straps, and the pouch's padded flap folds down to offer lower back cushioning. It's fairly comfy, though without a hip belt, you'll only want to wear the bag as a backpack when wheels really won't do.

One of the largest bags here, there's plenty of space for kit, while still staying within most airlines' carry-on limits. Decent dividers include three with U-shaped cutouts to cradle cameras with attached lenses.

Premium fabrics and fittings help justify the price, however some corners have literally been cut. A lack of exterior corner reinforcement is surprising, and the overall toughness doesn't feel quite on a par with the Tenba Roadie, though the TakeOff is noticeably lighter at just 3.9kg.

PhotoPlusVERDICT

PROS: Useful, well-engineered backpack conversion; practical size
CONS: Comes at a high price, yet average exterior protection
WE SAY: Lots to like, but lightweight doesn't come without compromise

OVERALL
★★★★

FIVE THINGS TO LOOK OUT FOR...

It's the subtle differences that can make or break a rolling bag

01 Flight friendly
A bag measuring 55x35x23cm or smaller will see you through most airline check-in desks, but travel light, as many airlines won't allow more than 10kg of carry-on luggage.

02 Divide and conquer
Most bags contain a three column layout, so overall interior width is critical when packing larger-diameter lenses. Well designed dividers can adapt to super-telephoto lenses, or even video lighting.

03 Built to last
Roller bags can take a lot of abuse. Quality, user-replaceable wheels should roll with the punches, while reinforced outer corners and toughened undersides add extra longevity.

04 The complete package
Carrying cameras and lenses is just the start. Look out for bags that boast a laptop slot and tripod attachment system. Easy-access outer pockets are a bonus, as is a removable main compartment.

05 Little extras
A roller bag with a pair of backpack straps is great when negotiating stairs or rough ground. Expandable compartments can also be had, and some bags will even carry a drone.



TAMRON SP 70-200mm f/2.8 Di VC USD G2

Tamron's new 'second generation' 70-200mm zoom takes the fight to Canon's top-flight L-series competitor

With a feast of high-tech features and high-performance glass, wrapped up in a robust and weather-sealed metal casing, Tamron's new 70-200mm G2 goes head-to-head with the world-class Canon EF 70-200mm f/2.8L IS II USM. It also significantly undercuts the Canon for price.

A complete revamp of Tamron's original 70-200mm VC lens, the G2's optical path has been optimized to deliver greater sharpness and contrast, with reduced colour fringing. Even the nano-structure eBAND (Extended Bandwidth & Angular-Dependency) coating has been refined to further resist ghosting and flare.

The ring-type ultrasonic autofocus system has been uprated for faster performance, and the

new-generation VC (Vibration Compensation) system delivers class-leading stabilization, gaining a five-stop rating in independent CIPA testing. Two additional stabilization modes are added, one for panning and the other for applying stabilization only during exposures, leaving the viewfinder view unadulterated. This is ideal for tracking erratically moving subjects.

Build quality is improved over the original Tamron lens, with

Boasting a metal barrel, rather than the usual plastic, this new Tamron oozes quality

Canon's top-end EF 70-200mm f/2.8L IS USM now has some serious competition in this fabulous lens

a metal, rather than plastic, barrel. A full set of weather-seals combine with a fluorine coating on the front element, which repels moisture and aids easy cleaning. The removable magnesium alloy collar has an Arca-Swiss-compatible foot, fitting directly to tripods and monopods.

The lens is compatible with Tamron's optional TAP-in Console, which enables firmware updates to

SPECIFICATIONS

FULL-FRAME COMPATIBLE	Yes
EFFECTIVE FOCAL LENGTH	70-200mm (full-frame), 112-320mm (APS-C)
IMAGE STABILIZER	Yes
MINIMUM FOCUS DISTANCE	0.95m
MAX MAGNIFICATION FACTOR	0.16x
MANUAL FOCUS OVERRIDE	Full-time
FOCUS LIMIT SWITCHES	Yes
INTERNAL ZOOM	Yes
INTERNAL FOCUS	Yes
FILTER SIZE	77mm
IRIS BLADES	9
WEATHER SEALS	Yes
SUPPLIED ACCESSORIES	Caps, hood, tripod collar, soft pouch
DIMENSIONS (DIA x LENGTH)	88x194mm
WEIGHT	1500g
PRICE	£1350/\$1300





be applied via a USB link from a connected computer, as well as customization and fine-tuning of autofocus and Vibration Compensation. The G2 is also fully compatible with Tamron's new 1.4x and 2.0x teleconverters, which boost the zoom range to 98-280mm or 140-400mm respectively, with a drop in aperture rating to either f/4 or f/5.6. In both cases, autofocus and VC remain available when using any Canon DSLR.

Handling is a joy, with a smooth and fluid feel to the zoom and focus rings. As usual in this class of constant-aperture telephoto lens, the zoom and focus mechanisms are fully internal, so the front element neither extends nor rotates.

Performance

Contrast is fabulous, even wide open, and the lens beats the mighty Canon f/2.8L IS II lens for centre-sharpness throughout the entire zoom range. Corner-sharpness is marginally less excellent than from the Canon lens in the 70-135mm sector but the Tamron edges into the lead at longer zoom settings.

True to its claims, autofocus is super-fast and the VC system is amazing, helping maintain stellar image quality even when tracking fast-moving subjects or under dull lighting. Other facets of image quality are superb, with negligible colour fringing, beautiful bokeh, very little distortion, and great resistance to ghosting and flare. 

FEATURES

01 A new version of Tamron's nano-structure eBAND Coating has been developed, to cut ghosting and flare.

02 XLD and LD elements reduce chromatic aberrations.

03 Weather-seals enable a dust-resistant, moisture-proof construction.

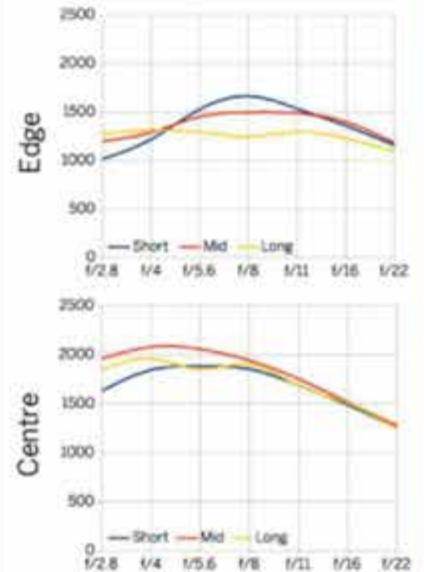
04 A focus limiter switch can lock out the short range of autofocus travel.

05 Top-performance optical stabilization comes in three switchable modes.

06 An uprated ring-type ultrasonic autofocus system greatly improves speed.

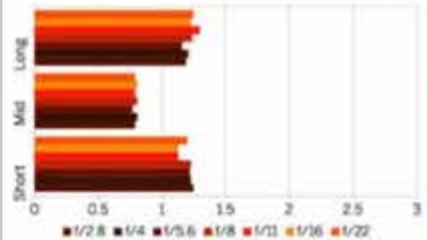
07 The lens is compatible with Tamron's TAP-in Console and new 1.4x and 2.0x teleconverters.

SHARPNESS



Sharpness is superb, with little drop-off even at the extreme corners of the frame

FRINGING (AT EDGE)



Negligible fringing either end of the zoom range, and it's even lower at mid settings

DISTORTION



There's only a hint of barrel at 70mm, and a small amount of pincushion at 200mm

PhotoPlus VERDICT

The G2 edition of the Tamron 70-200mm combines impeccable build quality with spectacular image quality and all-round performance. In many respects, it's better than Canon's highly acclaimed equivalent, and is an absolute steal at the price.

FEATURES	★★★★★
BUILD & HANDLING	★★★★★
IMAGE QUALITY	★★★★★
VALUE	★★★★★
OVERALL	★★★★★



Throughout the entire aperture range, this Tamron 70-200mm delivers superb sharpness and contrast



Teach Yourself Black & White Photography

Master mono photography – from visualising the shot to how to get the best results when editing



Teach Yourself Lightroom

Get to grips with Adobe's powerful Lightroom image editing program with our complete instructional course

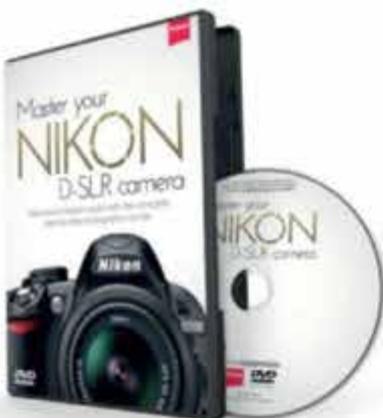


Master Your Canon D-SLR Camera

Get the most out of your new Canon D-SLR with this guide tailored specifically for Canon users

LEARN WITH VIDEO

Discover new skills with our range of DVD training courses



Master Your Nikon D-SLR Camera

Get to grips with the all the options, buttons and controls of your new Nikon D-SLR



Teach Yourself Photoshop

Complete instructional course on mastering Adobe's powerful Photoshop CC image editing program



Teach Yourself Raw in Photoshop

We give a complete guide to unleashing the power of this professional file format

Pick up the DVD for you at



www.bit.ly/photo_dvds

Canon camera neck straps

Five straps that offer extra comfort and features over a bundled neck strap



BlackRapid Binoc Breathe Strap

£40/\$40 www.blackrapid.com ★★★★★

WHILE it's billed as a strap for binoculars, this neck strap will attach to a camera equally easily. Its unique feature is a breathable, stretchy and very flexible neck pad. It also folds small and can be detached quickly, but the price still seems high next to the Matin strap.



Matin Neoprene Comfort Strap

£16/\$24 www.cameraclean.co.uk ★★★★★

MATIN'S thick and highly-flexible neoprene neck pad is designed to stretch slightly to better suspend a heavy load like your Canon DSLR and a telephoto zoom lens. A textured rubber coating on the underside adds comfort and is easily cleaned. Two quick-release clips mounted close to your camera leave unobtrusively short sections of strap attached if the neck piece is removed, and these can be joined to form a compact hand strap. Matin's entry gets top marks for value as well.



OpTech Pro Loop Strap

£19/\$22 www.optechusa.com ★★★★★

THIS WELL-PRICED strap features a 6cm-wide neoprene neck pad that really spreads a load, although its square-cut edges can rub. Two clips will detach the pad, leaving the connected ends able to join and form a hand strap, albeit one that's on the long side.



Peak Design Slide Strap

£55/\$60 www.peakdesign.com ★★★★★

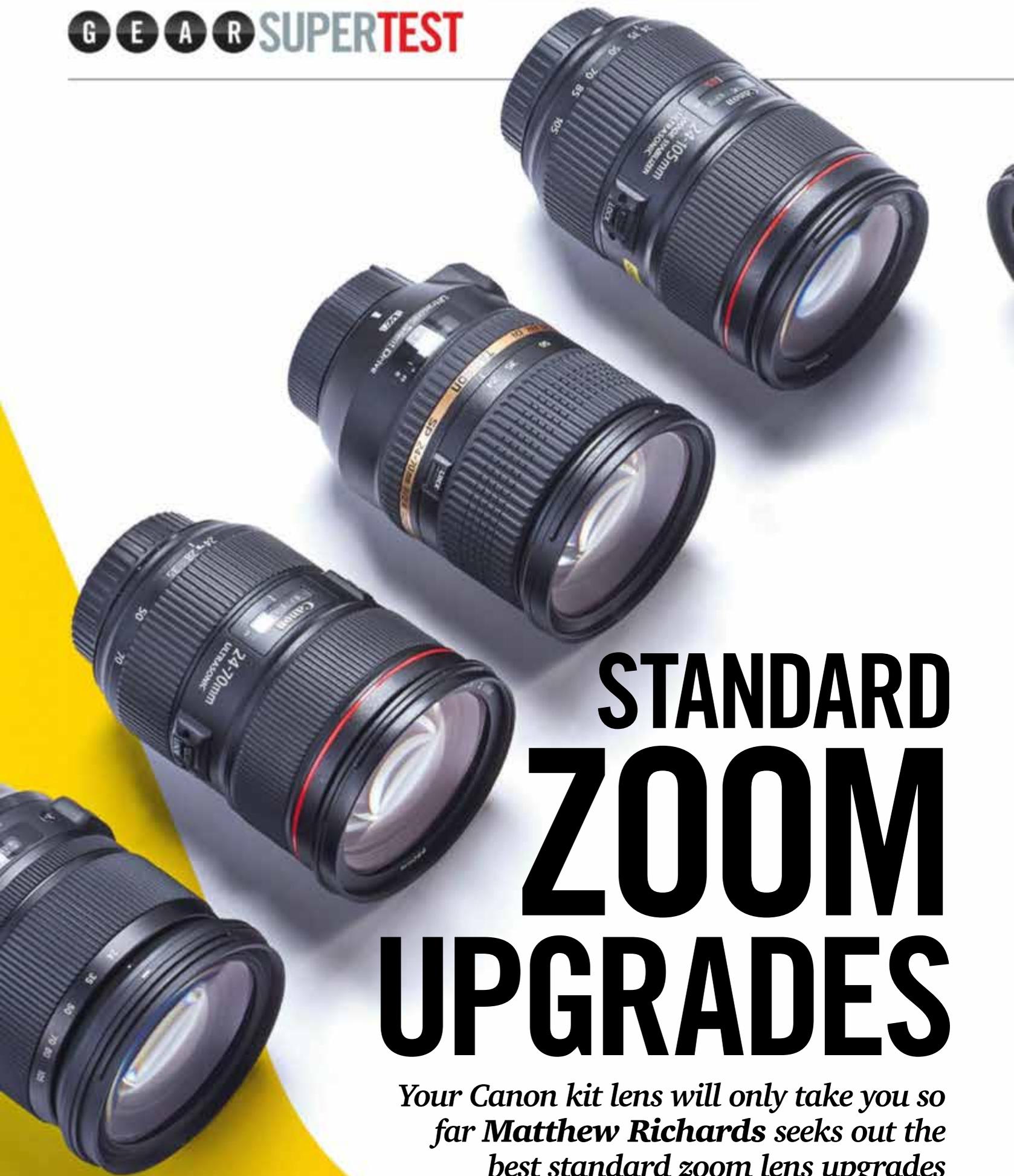
A SLING, shoulder and neck strap in one, the Slide exudes quality with a seatbelt-style strap and premium fittings, which include clever quick-release buttons to detach the strap. This is far from compact, though, making it tricky to squeeze into a tight kit bag.



Think Tank Camera Strap v2.0

£23/\$27 www.thinktankphoto.com ★★★★★

IT'S THE most compact strap here, but that's down to a narrow design that's no wider or more comfortable than a standard neck strap. A grippy coating on both sides lets this double as a shoulder strap, and extra hardware can connect it to backpack straps.



STANDARD ZOOM UPGRADES

Your Canon kit lens will only take you so far Matthew Richards seeks out the best standard zoom lens upgrades



THE CONTENDERS

APS-C



Canon EF-S
17-55mm f/2.8
IS USM
£750/\$800



Sigma 17-50mm
f/2.8 EX DC OS
HSM
£330/\$370



Sigma 17-70mm
f/2.8-4 DC Macro
OS HSM C
£350/\$500



Tamron SP AF
17-50mm f/2.8
XR Di II VC
£380/\$650

FULL-FRAME



Canon EF
24-70mm f/2.8L
II USM
£1900/\$1700



Canon EF
24-105mm f/4L
IS II USM
£1065/\$1000



Sigma
24-105mm f/4
DG OS HSM A
£600/\$900



Tamron SP AF
24-70mm f/2.8
Di VC USD
£800/\$1300

The 'kit' lenses supplied by Canon with its DSLRs have certainly improved on the years, but if you want to take your Canon photography to the next level, you'll need a standard zoom with longer reach, faster apertures and sharper focusing.

So we're testing the most appealing lenses from Canon, Sigma and Tamron, while covering Canon's other 'standard' options – all of which should offer an improvement in image quality.

Kit lens options for full-frame cameras tend to be a little more limited than for their APS-C format counterparts, and there's more choice when it comes to Canon own-brand upgrades. As in the APS-C format camp, one major reason for upgrading is so you can grab a lens with a wider aperture, typically of f/2.8, that remains available throughout the zoom range. This enables faster shutter speeds under dull or indoor lighting conditions, without the need to bump up your ISO setting too much.

A wider aperture also enables a tighter depth of field, so you can make the main subject really stand out against a blurred background. Alternatively, you can compromise on a 'slower' f/4 aperture and enjoy a lens upgrade with a more compact, lightweight build, or a bigger zoom range that stretches further into telephoto territory...

APS-C

CANON EF-S 17-55mm f/2.8 IS USM £750/\$800

A veteran APS-C format lens, with high-quality build

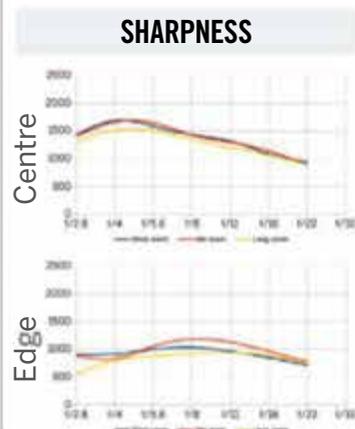
This is the closest thing to a pro-grade, L-series 'EF-S' lens for APS-C cameras that Canon has ever built. It's been around for a long time, originally announced 11 years ago back at the beginning of 2006. Yet it's a cut above the Sigma and Tamron APS-C lenses on test for robust build quality, and a little bigger and heavier. Upmarket attractions lacking in the competing lenses include ring-type ultrasonic autofocus and a focus distance scale beneath a viewing panel. It doesn't feature weather-seals like most Canon L-series lenses, however, and the EW-83J lens hood is sold as an optional extra (£29/\$49).

Unlike Canon's f/2.8 standard zooms for full-frame cameras, this one features an image stabilizer. Yet it's an old version of the technology and only gives three, rather than four, stops of advantage in fending off camera-shake. Stabilization in the competing Sigma and Tamron lenses is a little more effective. Another similarity between this and competing APS-C lenses is

that they all feature a seven-blade diaphragm, which gives a reasonably well-rounded aperture when stopping down.

Performance

Compared with the autofocus systems of other APS-C lenses on test, it's faster and quieter, if not near silent as in Canon's STM or Micro USM lenses. Lab scores for sharpness proved underwhelming for this particular test sample, but we've always been impressed by the lens's clarity in our wide-ranging real-world tests and how other samples have performed in the past.



FEATURES

- 01 Super Spectra coatings reduce ghosting and flare.
- 02 The 77mm filter thread is the same size as in the Sigma 17-50mm f/2.8.
- 03 It's the only APS-C format lens on test to feature ring-type ultrasonic autofocus.
- 04 The focus distance scale is beneath a viewing panel.
- 05 As with other APS-C format lenses in the group, the metal mounting plate isn't weather-sealed.

VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★

HOW WE TEST

We combine real-world shooting results with rigorous lab testing to arrive at our overall ratings



To test real-world performance, we use lenses in all sorts of lighting conditions. We check for good build quality and handling, smooth and precise operation of all controls, and we test the speed and accuracy of autofocus. We test full-frame compatible lenses on a range of full-frame and APS-C format bodies, whereas lenses designed specifically for APS-C format bodies are tested on cameras like the 7D Mk II.

In-camera corrections for chromatic aberrations and peripheral illumination (where available) are disabled throughout all testing, to better reveal the true performance of each lens. We also run a full range of lab tests under controlled conditions, using the Imatest Master and DxO Analyser suites. Photos of test charts are taken across the range of apertures and zoom settings (where available), then analysed for sharpness, distortion and chromatic aberrations (colour fringing).

APS-C

SIGMA 17-50mm f/2.8 EX DC OS HSM £330/\$370

A bargain – but things aren't quite what they seem

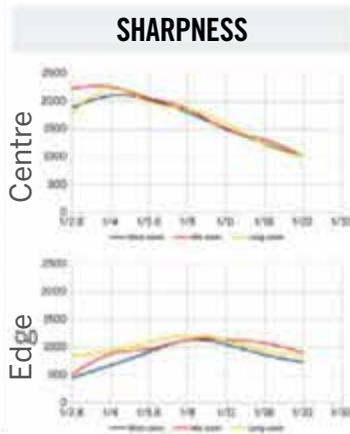
Apart from its slightly shorter telephoto reach, this Sigma lens appears to offer most of the same advantages as its Canon counterpart, but at less than half the price. Sure enough, it features optical stabilization, this time rated at four rather than three stops, and has an aperture rating of f/2.8 that remains constant throughout the zoom range. It's a little smaller and lighter, and doesn't feel quite as robust, but the main difference lies beneath the skin.

Whereas both of the Canon and Sigma lenses have ultrasonic autofocus systems, the Canon's is ring-type, whereas the Sigma's relies on a small motor. On the plus side, this helps to enable a more compact construction, but the autofocus system isn't as near-silent and lacks full-time manual override. Instead, you have to swap between AF and M settings using a small switch on the lens barrel. Worse still, the focus ring rotates during autofocus, so care is needed not to impede its action when

holding the lens during shooting. A focus distance scale is printed on the manual focus ring, which is positioned towards the front of the lens.

Performance

Image quality is sharp across most of the image frame but quite soft in the corners, especially at short to mid zoom settings when using apertures wider than f/5.6. Living up to its claims, stabilization is slightly more effective than in the competing Canon 17-55mm lens, but autofocus speed is a little slower.



FEATURES

- 01** A petal-shaped lens hood is supplied, along with a case.
- 02** The optical path includes two FLD (Fluorite-grade Low Dispersion) glass elements.
- 03** A focus distance scale is printed at the forward end of the focus ring.
- 04** A lock switch stops the lens extending when on the move.
- 05** The HSM autofocus system is motor-based rather than ring-type.

VERDICT

FEATURES
★★★★☆

BUILD & HANDLING
★★★★☆

IMAGE QUALITY
★★★★☆

VALUE
★★★★☆

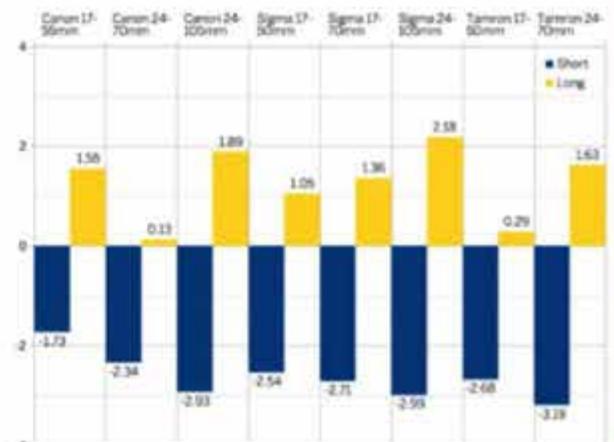
OVERALL
★★★★☆

DISTORTION

Expect some noticeable barrel distortion at the short end

Standard zoom lenses are somewhat notorious for producing noticeable barrel distortion at their most wide-angle settings. This is certainly the case with all of the lenses on test, although the full frame-compatible Canon and Sigma 24-105mm and Tamron 24-70mm are a little worse than most. Again, the 24-105mm lenses, with their longer zoom range, give a little more pincushion distortion than most competing lenses at the telephoto end, along with the APS-C format Sigma 17-70mm, which has an 'effective' zoom range of 27-112mm.

Negative results of higher values indicate greater barrel distortion



APS-C

SIGMA 17-70mm f/2.8-4 DC MACRO OS HSM C **£350/\$500**

A new and improved edition of Sigma's 17-70mm lens

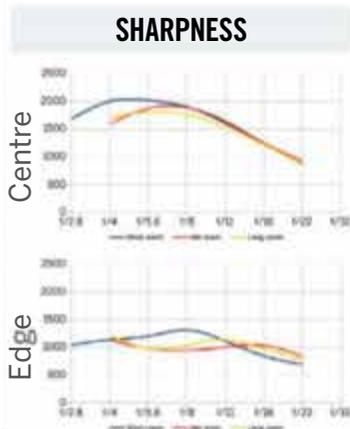
Sigma's popular 17-70mm OS lens has received a revamp for entry into the Contemporary section of the company's lineup of lenses. It's the only lens in the group that has a variable rather than constant aperture rating, shrinking from f/2.8 to f/4 as you extend through the zoom range. The zoom range itself is bigger than in any of the other APS-C format lenses on test, reaching a generous 112mm 'effective' focal length at the long end.

Sigma's Contemporary line of lenses aim to be compact, and the 17-70mm is no exception. At 79x82mm and 465g, it's smaller and lighter than any other lens on test, and has a smaller 72mm filter thread than the 77mm thread of Sigma's constant-aperture 17-50mm f/2.8 lens. Similarities between the two lenses include four-stop optical stabilization and a motor-based hypersonic autofocus system, the pros and cons of which are highlighted in the previous review. Also like the 17-50mm, this lens comes with a petal-shaped lens hood

but, unlike the other Sigma lenses on test, it's not supplied with a padded soft case.

Performance

Centre-sharpness isn't quite as good as from Sigma's 17-50mm lens but sharpness towards the edges and corners of the frame is more impressive at wide aperture settings, especially at the short end of the zoom range. Autofocus speed is a little quicker, while the optical stabilizer is similarly effective. Overall, the newer Contemporary lens is the more appealing of the two.



FEATURES

- 01 A 72mm filter thread is relatively small.
- 02 Only the front of the focus ring is knurled, helping it to slip through your fingers during autofocus.
- 03 The build is compact but extension is greater than in most competing lenses.
- 04 There's no zoom lock, but there are no problems of zoom creep while shooting.
- 05 The mount works with Sigma's USB Dock, for applying firmware upgrades.

VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★

MORE EF-S OPTIONS

There are four more Canon APS-C format lenses to choose from. Here's how they compare...



Canon EF-S 15-85mm f/3.5-5.6 IS USM

£650/\$800

Most standard full-frame zooms have generous wide-angle coverage at 24mm. APS-C format standard zooms give a more limited viewing angle, equating to 27mm on a full-frame body. This lens redresses the balance, with a 24-136mm equivalent range.



Canon EF-S 18-55mm f/4-5.6 IS STM

£220/\$250

Ideal for use with compact DSLRs like the 100D and 1300D, this new edition of the 18-55mm IS STM lens is even smaller and lighter than its predecessor, at just 67x62mm and 215g. The widest available aperture of f/4 is a third of a stop slower than in the previous edition.

APS-C

TAMRON SP AF 17-50mm f/2.8 XR DI II VC £380/\$650

Tamron's updated 17-50mm lens adds stabilization

Launched in 2009, this updated version of Tamron's constant-aperture f/2.8 lens for APS-C format cameras adds the company's proprietary tri-axial optical stabilizer or 'VC' (Vibration Compensation) system. It's effective to about four stops, beating the stabilizer in the competing Canon 17-55mm lens.

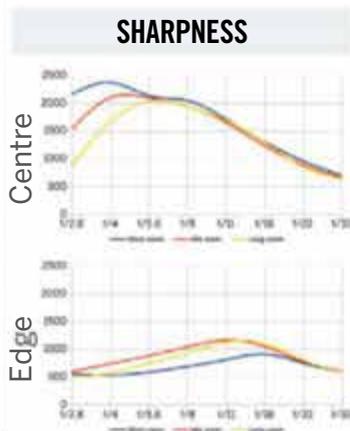
When it comes to autofocus, though, it looks comparatively old-fashioned, with a system designed around a basic electric motor. Autofocus is noisier than in any other lens on test, although it's slightly faster than the ultrasonic system in the Sigma 17-50mm lens. Again, handling is adversely affected by the focus ring spinning during autofocus, so you have to be careful where you put your fingers. There's also no facility for tweaking autofocus results with manual override, unless you switch to the fully manual focus mode.

The lens is a little smaller in diameter than the competing Canon and Sigma APS-C format f/2.8 lenses, and has a smaller filter thread of 72mm,

matching that of the Sigma 17-70mm. High-tech glass includes XR (Extra Refractive), LD (Low Dispersion) and hybrid aspherical optical elements, and a zoom lock switch is also fitted.

Performance

Performance is good overall but, towards both ends of the zoom range, levels of sharpness are disappointing around the edges and corners of the image frame. At wide-angle settings, image corners remain soft at all available apertures. Even so, it's a good buy at the price.



01



02

04

03



05

FEATURES

- 01 The filter thread is the smallest of any constant-aperture lens, at 72mm.
- 02 Positioned towards the front of the barrel, the manual focus ring is small.
- 03 A zoom lock switch is fitted, along with AF/M focusing and VC on/off switches.
- 04 The direction of the zoom ring is reversed compared with Canon lenses.
- 05 Construction feels sturdy and the lens is fairly lightweight.

VERDICT

FEATURES
★★★★☆

BUILD & HANDLING
★★★★☆

IMAGE QUALITY
★★★★☆

VALUE
★★★★☆

OVERALL
★★★★☆

Canon EF-S 18-135mm f/3.5-5.6 IS STM



£380/\$400

Sold as a 'kit' lens with upmarket APS-C format camera bodies, this also makes a worthy upgrade option. It gives much more telephoto reach than a 18-55mm lens, equivalent to 216mm focal length on a full-frame camera. The STM autofocus system is fast, smooth and virtually silent.

Canon EF-S 18-135mm f/3.5-5.6 IS USM



£430/\$600

The latest edition of Canon's 18-135mm lens replaces the STM autofocus system with Micro USM technology. This arguably gives the best of both worlds, with even faster autofocus performance, akin to ring-type ultrasonic systems, with smooth and near-silent operation, ideal for shooting movies.

FULL-FRAME

CANON EF 24-70mm f/2.8L II USM £1900/\$1700

This Mk II edition is the reinvention of a classic

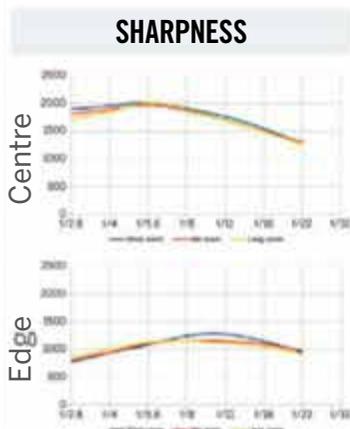
The standard zoom of choice for pro photographers, Canon's original 24-70mm f/2.8L was something of a classic. Even so, some said that build quality could have better, and it was criticised in some quarters for 'field curvature', which caused the centre and edges of the frame to focus at different distances. The Mk II edition has an even more robust construction, with a full set of weather-seals, and redesigned optics that include no less than three complex aspherical elements.

As you'd expect from Canon's range-topping standard zoom, autofocus comes courtesy of a fast and whisper-quiet ring-type ultrasonic system. There's an increase to nine diaphragm blades, ensuring a better-rounded aperture when stopping down from f/2.8. Fluorine coatings have also been added to the front and rear elements, to repel muck and moisture. All in all, it's a beautifully engineered and super-tough lens that's built to withstand shooting in the

harsh conditions. A zoom lock has also been fitted.

Performance

Image quality is excellent, with great sharpness and contrast even when shooting wide-open. Sharpness has been improved towards the edges of the frame but, even so, the ability to capture consistently sharp handheld images can suffer due to the lack of an optical stabilizer, featured in all of the other lenses on test. The lack of stabilization aside, this simply delivers the best performance of any lens in the group.



FEATURES

- 01 The filter thread is 82mm, and the lens comes with an EW-83C hood.
- 02 Fluorine coatings are applied to the outer surfaces of the front and rear elements.
- 03 The forward-mounted focus ring is large and super-smooth.
- 04 A zoom lock switch stops the lens from extending in transit.
- 05 A set of weather-seals includes a rubber ring around the mounting plate.

VERDICT

- FEATURES** ★★★★★
- BUILD & HANDLING** ★★★★★
- IMAGE QUALITY** ★★★★★
- VALUE** ★★★★★
- OVERALL** ★★★★★

FULL-FRAME MONEY-SAVERS FROM CANON

These two Canon full-frame lenses are appealing choices, if you're on a tight budget



Canon EF 24-70mm f/4L IS USM

£800/\$900

Canon's range-topping EF 24-70mm f/2.8L II USM standard zoom is very expensive and lacks image stabilization. If you're willing to settle for a widest aperture an f-stop slower, this lens is half the price, more compact and lightweight, and offers fabulous image quality, with four-stop stabilization.



Canon EF 24-105mm f/3.5-5.6 IS STM

£380/\$600

Canon's latest 24-105mm L-series lens will set you back £1065/\$1000. The IS STM edition is much less expensive. It has a variable aperture rating, shrinking to f/5.6 at the long end of the range, and lacks weather-seals. But it's relatively lightweight at 525g and still delivers impressively sharp image quality.

FULL-FRAME

CANON EF 24-105mm f/4L IS II USM £1065/\$1000

Another Canon standard zoom gets upgraded

Canon's original 24-105mm IS USM didn't make it onto the hit list of approved lenses for the high-res 5DS and 5DS R. The new Mk II has been redesigned to be tougher and more resistant to shock and vibration, as well as featuring fluorine coatings on the front and rear elements. More importantly, the optics have been revamped, with the aim of improving sharpness across the whole image frame, throughout the zoom range.

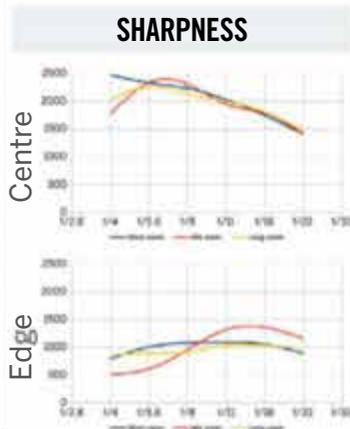
A new-generation image stabilizer gives four-stop performance, which is a big step up from the 2.5-stop stabilizer of the original lens. High-tech 'Air Sphere Coatings' are also applied for maximum resistance against ghosting and flare. Pro-grade build quality combines excellent handling with a weather-sealed construction.

Despite the relatively big zoom range, the lens is barely any larger than Canon's 24-70mm lens and is actually slightly lighter, as well as having a smaller filter thread attachment. The flip side is

that it's a stop slower, with a constant-aperture rating of f/4 instead of f/2.8.

Performance

Barrel distortion from the preceding 24-105mm lens was notoriously bad at the short end of the zoom range, but the Mk II performs a little better. It's also a bit sharper, autofocus is a little quicker and bokeh is smoother, thanks to the fitment of ten, rather than eight, diaphragm blades. Overall, however, each of the improvements is quite subtle rather than making a hugely noticeable difference.



FEATURES

- 01 Air Sphere and fluorine coatings are applied on the front and rear elements.
- 02 The focus ring is situated at the front, and behind it sits a focus distance scale.
- 03 The image stabilizer is more effective and features automatic panning detection.
- 04 Ring-type ultrasonic autofocus is fast and smooth.
- 05 Extensive weather-seals make the Mk II a trusty companion in harsh conditions.

VERDICT

FEATURES
★★★★★

BUILD & HANDLING
★★★★★

IMAGE QUALITY
★★★★★

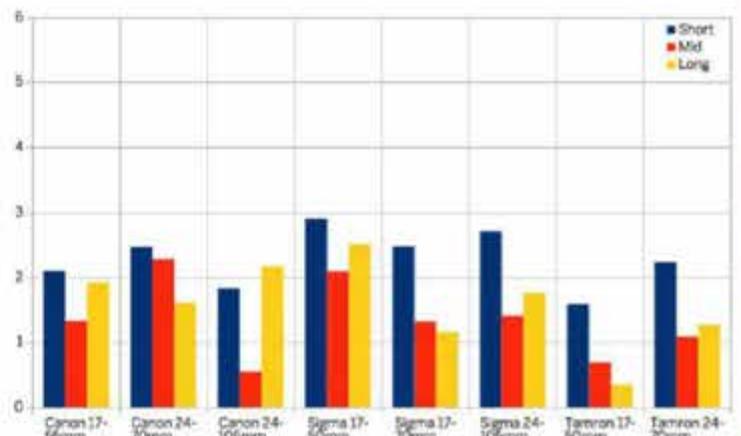
VALUE
★★★★★

OVERALL
★★★★★

COLOUR FRINGING

Colour fringing tends to be worse at the short end of the zoom range, but there's no real cause for concern

As you'll notice from our lab results shown here, lateral chromatic aberrations towards the corners of images when using these lenses tend to be a little worse at the short end of the zoom range. Even so, there's not much to worry about, as all of the lenses on test do well to suppress this unwanted image attribute, which causes bright lines of colour around high-contrast edges in images, like dark tree branches against a bright sky.



FULL-FRAME

SIGMA 24-105mm f/4 DG OS HSM A £600/\$900

A smart buy if you're on the UK side of the Atlantic

One of Sigma's first 'Art' line lenses, this one is built for quality and goes toe-to-toe with Canon's 24-105mm lens in both zoom range and aperture rating. Similarly, it features optical stabilization and high-end build quality, as well as upmarket glass, in this case including FLD (Fluorite-grade Low Dispersion), SLD (Special Low Dispersion) and aspherical elements.

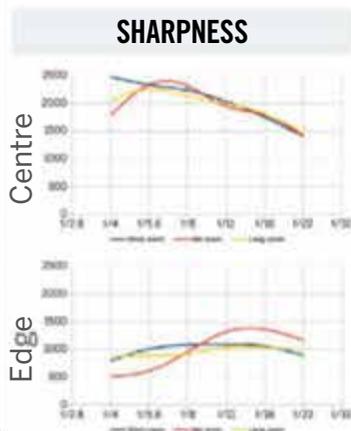
The Sigma is larger and heavier than its Canon counterpart, and has a bigger filter thread of 82mm compared with the Canon's 77mm. In our tests, vignetting was a little less evident when shooting wide-open but, being a Sigma rather than Canon lens, automatic corrections aren't available in-camera or via Canon's DPP software.

The construction of the Sigma lens feels similarly solid to the Canon, but doesn't feature weather-seals. Like the 17-70mm 'Contemporary' lens for APS-C cameras, this one is compatible with Sigma's optional USB Dock. Compared with the Canon 24-105mm

lens, the diaphragm has one less blade, at nine rather than ten, but the aperture is nevertheless well-rounded.

Performance

The Sigma delivers greater centre-sharpness than the Canon 24-105mm, throughout the zoom range. At mid to long zoom settings, however, the Canon just about has the edge for corner-sharpness. Colour fringing and distortion is very similar in both lenses, as is the speed of autofocus. Overall, the Sigma is much better value than the Canon in the UK, but less so in the USA.



FEATURES

- 01 Coatings aren't as high-tech as in the equivalent Canon, but are effective.
- 02 Compared with the Canon 24-105mm, the positions of the zoom and focus rings are reversed.
- 03 Construction is of very high quality but weather-seals are absent.
- 04 The focus distance scale is placed near the rear of the lens.
- 05 The mount is compatible with Sigma's USB Dock.

VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★



ART FOR ART'S SAKE

Sigma's new 'Art' line lens is coming soon, with stabilization and a fast max aperture

We've been highly impressed by Sigma's 'Art' line of lenses that form part of the company's Global Vision lineup. Whereas 'Contemporary' class lenses aim for a compact, lightweight build and 'Sport' lenses are geared to capturing action shots, 'Art' lenses concentrate on maximizing creative potential. As such, they feature wide aperture ratings to enable tight depths of field, and premium quality components.

The Sigma 24-70mm f/2.8 DG OS HSM A was announced back in February, although pricing is yet to be confirmed. Impressive build quality includes a metal barrel and weather-seals, and Sigma promises outstanding image quality.

Like the Tamron 24-70mm lens but unlike its Canon competitor, the Sigma combines a fast f/2.8 constant aperture rating with built-in optical image stabilization.

FULL-FRAME

TAMRON SP AF 24-70mm f/2.8 DI VC USD £800/\$1300

An anti-shake advantage over Canon's competitor

Just as with the Sigma 24-105mm, the difference in price between this Tamron and Canon's own 24-70mm f/2.8 lens is much greater in the UK than in the USA. In Britain, the Canon is nearly 2.5x more expensive but, in the USA, it's less than 1.5x pricier. Whichever side of the pond you're on, one indisputable fact is that the Tamron lens features highly effective optical stabilization, whereas the Canon has none.

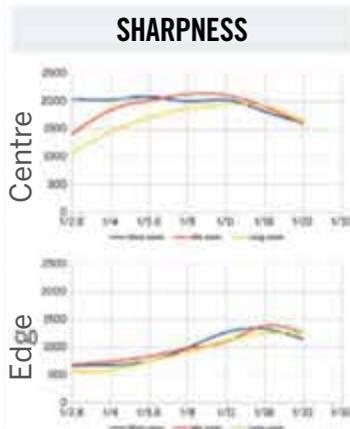
The Tamron is well built with a rock-solid feel and great handling. The zoom and focus rings operate with silky smoothness and, when launched, it was Tamron's first weather-sealed lens. High-quality glass includes three LD (Low Dispersion) elements and two XR (Extra Refractive index) elements. It doesn't feature Tamron's more recently introduced nano-structure coatings but the lens proved impressively resistant to ghosting and flare.

This lens is almost exactly the same size and weight as the competing Canon 24-70mm f/2.8 and has the

same 82mm filter thread. The ring-type ultrasonic autofocus system is similarly quick and effective, with the usual full-time manual override.

Performance

The Tamron loses out to the Canon 24-70mm for corner-sharpness. Centre sharpness is excellent, however, especially at the wide-angle end of the zoom range, even when shooting wide-open. There's a little more barrel distortion at 24mm than from the Canon lens but, overall, performance is very good. In the UK, it's unbeatable value at the price.



FEATURES

- 01 It's a chunky lens with a large front element and 82mm filter thread.
- 02 The zoom ring is smooth and there's a locking switch.
- 03 Fairly narrow, the focus ring nevertheless operates effectively.
- 04 The focus distance scale is positioned beneath a viewing panel.
- 05 Weather-seals include a rubber ring around the mounting plate.

VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★

SUPERSIZED REACH

A not-so-standard zoom lens can really extend your telescopic vision

So-called 'superzoom' lenses have become highly popular for APS-C format DSLRs, offering an extended zoom range without the need to swap lenses on your camera body. This makes them an attractive option for travel photography, as well as for shooting in dusty conditions where you're less than keen to remove the lens that's on your camera.

Canon's own EF-S 18-200mm f/3.5-5.6 IS lens is somewhat long in the tooth, has a basic and outdated autofocus system, and delivers an outright zoom range that's a little less than 'super'. Our current favourites are the Sigma 18-300mm f/3.5-6.3 DC Macro OS HSM C (£370/£500) and the Tamron 16-300mm f/3.5-6.3 Di II VC PZD Macro (£430/£630). Both are impressively compact and lightweight for superzoom lenses, and deliver good all-round performance, although the Tamron wins for wide-angle coverage.



COMPARISON TABLE

	APS-C				FULL-FRAME			
	Canon EF-S 17-55mm f/2.8 IS USM	Sigma 17-50mm f/2.8 EX DC OS HSM	Sigma 17-70mm f/2.8-4 DC Macro OS HSM C	Tamron SP AF 17-50mm f/2.8 XR Di II VC	Canon EF 24-70mm f/2.8L II USM	Canon EF 24-105mm f/4L IS II USM	Sigma 24-105mm f/4 DG OS HSM A	Tamron SP AF 24-70mm f/2.8 Di VC USD
Web	www.canon.co.uk	www.sigma-imaging-uk.com	www.sigma-imaging-uk.com	www.tamron.co.uk	www.canon.co.uk	www.canon.co.uk	www.sigma-imaging-uk.com	www.tamron.co.uk
Full-frame compatible	No	No	No	No	Yes	Yes	Yes	Yes
Effective zoom range (APS-C)	27-88mm	27-80mm	27-112mm	27-80mm	38-112mm	38-168mm	38-168mm	38-112mm
Elements/groups	19/12	17/13	16/14	19/14	18/13	17/12	19/14	17/12
Diaphragm blades	7 blades	7 blades	7 blades	7 blades	9 blades	10 blades	9 blades	9 blades
Image stabilizer	3-stops	4-stops	4-stops	4-stops	None	4-stops	4-stops	4-stops
Autofocus type	Ultrasonic (ring type)	Ultrasonic (motor)	Ultrasonic (motor)	Micro-motor	Ultrasonic (ring type)	Ultrasonic (ring type)	Ultrasonic (ring type)	Ultrasonic (ring type)
Manual focus override	Full-time	None	None	None	Full-time	Full-time	Full-time	Full-time
Focus ring rotates during AF	No	Yes	Yes	Yes	No	No	No	No
Minimum focus distance	0.35m	0.28m	0.22m	0.29m	0.38m	0.45m	0.45m	0.38m
Max magnification factor	0.17x	0.2x	0.36x	0.21x	0.21x	0.24x	0.22x	0.20x
Focus distance scale	Under panel	External	External	External	Under panel	Under panel	Under panel	Under panel
Weather seals	No	No	No	No	Yes	Yes	No	Yes
Filter size	77mm	77mm	72mm	72mm	82mm	77mm	82mm	82mm
Lens hood	EW-83J, £29/\$49	Included	Included	Included	EW-88C, included	EW-83M, included	Included	Included
Dimensions (dia x length)	84x111mm	84x92mm	79x82mm	80x95mm	89x113mm	84x118mm	89x109mm	88x117mm
Weight	645g	565g	465g	570g	805g	795g	885g	825g
Target price	£750/\$800	£330/\$370	£350/\$500	£380/\$650	£1900/\$1700	£1065/\$1000	£600/\$900	£800/\$1300
FEATURES	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BUILD & HANDLING	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
PERFORMANCE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
OVERALL	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★

THE WINNER IS... APS-C: CANON EF-S 17-55mm f/2.8 IS USM FULL-FRAME: CANON EF 24-70mm f/2.8L II USM

It's Canon all the way for utmost quality and performance

Canon's EF-S 17-55mm f/2.8 is the top APS-C lens, while the EF 24-70mm f/2.8 wins for full-frame bodies. Both give class-leading performance and image quality, and especially in the APS-C arena, where the Canon has a much more pro-grade feel than its competitors. Even so, the Sigma 17-70mm is a great value buy, despite it being the only lens in the entire group to have a variable, rather than constant, aperture rating.

Even though the Canon 24-70mm f/2.8 wins out for image quality, the competing Tamron's addition of optical stabilization can be enormously helpful in getting sharp shots in dull lighting conditions, and it's a bargain, at least in the UK. If you want a longer zoom range, the Canon 24-105mm marginally outperforms the Sigma lens and has the advantage of a weather-sealed construction but, again, the Sigma is better value in the UK.

Thanks to Hire a Camera (www.hireacamera.com) for assistance with lens samples used in this test



THE BIGGEST & BEST PHOTO BUYERS' GUIDE



Our in-depth reviews and group tests will help you find your ideal SLR or mirrorless system camera



Our expert laboratory tests help you to pick the best quality camera or lens to suit your budget



Our accessory group tests ensure you find out the best-value bolt-ons for your camera



With 164 fact-packed pages, this is the UK's biggest and best guide to choosing your photographic gear

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www.myfavouritemagazines.co.uk/photography/

BUYERS' GUIDE

With prices ranging from a couple of hundred quid to several thousand, Canon has a DSLR to suit everyone, from the complete beginner to most demanding pro...



What to look for

Canon EOS DSLRs

Canon splits its EOS lineup into entry-level, enthusiast and professional ranges, and the fewer digits the more upmarket the camera; so the new 1300D is the most basic, the 750D/760D for intermediates, while the 80D is for more advanced enthusiasts. Expect greater ease of use (with thumb-operated scrollwheels replacing cumbersome cursor keys), more robust build quality (with weather-sealing and tough magnesium-alloy shells), more advanced functionality, and full-frame (rather than smaller APS-C) image sensors with more expensive EOS models.

DSLR/CSC prices quoted are body-only unless stated

CANON EOS 1300D (REBEL T6)

TESTED IN ISSUE 120 PRICE: £289/\$449 (US PRICE WITH KIT LENS)



CANON'S entry-level, budget-friendly EOS DSLR gets up a minor upgrade over its predecessor with added Wi-Fi and NFC to make it easy to instantly share images online. A basic 18Mp sensor, ISO6400 and 3fps are all specs ideal for a beginner's first 'proper' camera. ★★★★★

Sensor	18Mp, APS-C (5184x3456 pixels)
Viewfinder	Pentamirror, 0.8x, 95%
ISO	100-6400 (12,800 expanded)
AF	9-point (1 cross-type)
LCD	Fixed, 3-inch, 920k-dot TFT
Max burst (buffer)	3fps (6 Raw/1100 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 100D (REBEL SL1)

TESTED IN ISSUE 120 PRICE: £299/\$399



IT'S SMALLER than any other Canon DSLR but is big on features and is something of a step up in sophistication from the 1200D, with a newer-generation image processor, high-res touchscreen and 'hybrid CMOS AF' for effective continuous autofocus during movie capture. ★★★★★

Sensor	18Mp, APS-C (5184x3456 pixels)
Viewfinder	Pentamirror, 0.87x, 95%
ISO	100-12,800 (25,600 expanded)
AF	9-point (1 cross-type)
LCD	3in touchscreen, 1040K dots
Max burst (buffer)	4fps (7 Raw/28 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 750D (REBEL T6i)

TESTED IN ISSUE 120 PRICE: £549/\$749



HEADLINE attractions include a 24.2Mp high-resolution image sensor and DIGIC 6 processor, plus a 19-point autofocus system. It beats the older 700D in all these respects, and adds Wi-Fi and NFC connectivity for easy image sharing and printing. ★★★★★

Sensor	24.2Mp, APS-C (6000x4000 pixels)
Viewfinder	Pentamirror, 0.82x, 95%
ISO	100-12,800 (25,600 expanded)
AF	19-point (all cross-type)
LCD	3in touchscreen vari-angle, 1040K dots
Max burst (buffer)	5fps (8 Raw/940 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 760D (REBEL T6s)

TESTED IN ISSUE 108 PRICE: £559/\$849



BUILDING on the impressive features of the 750D, the 760D adds a secondary info LCD on the top and Quick Control Dial on the rear. This improves handling and makes it feel more like an 'enthusiast' model, rather than an entry-level DSLR, and is worth the extra outlay. ★★★★★

Sensor	24.2Mp, APS-C (6000x4000 pixels)
Viewfinder	Pentamirror, 0.82x, 95%
ISO	100-12,800 (25,600 expanded)
AF	19-point (all cross-type)
LCD	3in touchscreen vari-angle, 1040K dots
Max burst (buffer)	5fps (8 Raw/940 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 800D (REBEL T7i)

TESTED IN ISSUE 126 PRICE: £779/\$749



CANON has shoehorned much of the tech of the enthusiast-level 80D into a beginner body. The 800D inherits its bigger brother's 24Mp Dual Pixel sensor for superior Live View autofocus, uses the same 45-point module for viewfinder autofocus, and betters its ISO performance. ★★★★★

Sensor	24.2Mp, APS-C (6000x4000 pixels)
Viewfinder	Pentamirror, 0.82x, 95%
ISO	100-25,600 (51,200 expanded)
AF	45-point (all cross-type)
LCD	3in touchscreen vari-angle, 1040K dots
Max burst (buffer)	6fps (27 Raw/unlimited JPEG)
Memory card	SD/SDHC/SDXC

ENTRY LEVEL

CANON EOS M3



TESTED IN ISSUE 102 PRICE: £369/\$479

Sensor	24.2Mp, APS-C (6000x4000 pixels)
ISO	100-12,800 (25,600 expanded)
AF	Hybrid CMOS AF III & 49 AF points

CANON EOS M5



TESTED IN ISSUE 122 PRICE: £1049/\$979

Sensor	24.2Mp, APS-C (6000x4000 pixels)
ISO	100-25,600
AF	Dual CMOS AF & 49 AF points

CANON EOS 80D



THE 80D builds upon its 70D predecessor with 25% more pixels, 45 cross-type AF points, improved ISO performance and retains the ability to capture 7fps bursts. It can record movies at double-speed 50/60fps for slow-motion, and has NFC data transfer in addition to Wi-Fi. ★★★★★

TESTED IN ISSUE 113 PRICE: £919/\$1099

Sensor	24.2Mp, APS-C (6000x4000 pixels)
Viewfinder	Pentaprism, 0.95x, 100%
ISO	100-16,000 (25,600 expanded)
AF	45-point (all cross-type)
LCD	3in touchscreen vari-angle, 1040K dots
Max burst (buffer)	7fps (25 Raw/110 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 7D Mk II



HERE'S the king of action-packed APS-C format cameras. A long-overdue revamp of the original 7D, it has 65-point AF with advanced tracking, 10fps continuous drive, dual DIGIC 6 processors and GPS, all wrapped up in a tough, weather-sealed magnesium alloy shell. ★★★★★

TESTED IN ISSUE 108 PRICE: £1249/\$1349

Sensor	20.2Mp, APS-C (5472x3648 pixels)
Viewfinder	Pentaprism, 1.0x, 100%
ISO	100-16,000 (51,200 expanded)
AF	65-point (all cross-type)
LCD	3in, 1040K dots
Max burst (buffer)	10fps (31 Raw/unlimited JPEG)
Memory card	CompactFlash + SD/SDHC/SDXC

CANON EOS 6D



AMAZINGLY good value for a full-frame EOS DSLR in a medium-sized body, the 6D combines a respectable 20.2Mp sensor with super-high sensitivities of up to ISO102,400. Image quality is excellent and there's built-in Wi-Fi and GPS, but the 6D has a fairly basic AF system. ★★★★★

TESTED IN ISSUE 124 PRICE: £1399/\$1269

Sensor	20.2Mp, full-frame (5472x3648 pixels)
Viewfinder	Pentaprism, 0.71x, 97%
ISO	100-25,600 (50-102,400 expanded)
AF	11-point (1 cross-type)
LCD	3in, 1040K dots
Max burst (buffer)	4.5fps (17 Raw/1250 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 5D Mk IV



A SUPERB all-rounder, the pro-level weather-sealed full-frame 5D Mk IV combines a stunning hi-res 30Mp sensor with a swift 7fps frame rate. Its impressive specs list includes 4K video, a touchscreen LCD, Wi-Fi and NFC connectivity, and GPS to automatically geotag images. ★★★★★

TESTED IN ISSUE 124 PRICE: £3499/\$3499

Sensor	30.4Mp, full-frame (6720x4480 pixels)
Viewfinder	Pentaprism, 0.71x, 100%
ISO	100-32,000 (50-102,400 expanded)
AF	61-point (41 cross-type, 5 dual-cross)
LCD	3.2in touchscreen, 1620K dots
Max burst (buffer)	7fps (21 Raw/unlimited JPEG)
Memory card	CompactFlash + SD/SDHC/SDXC

CANON EOS 5DS (5DS R)



THE world's first 50Mp full-frame DSLR delivers huge and amazingly detailed hi-res images. The higher-cost 5DS R adds a 'low-pass cancellation filter' for marginally sharper shots. As expected with such a high-res sensor, max ISO and drive rate are lower than with the 5D Mk IV. ★★★★★

TESTED IN ISSUE 124 PRICES: £2799/\$3499 (£2899/\$3699)

Sensor	50.6Mp, full-frame (8688x5792 pixels)
Viewfinder	Pentaprism, 0.71x, 100%
ISO	100-6400 (50-12,800 expanded)
AF	61-point (41 cross-type, 5 dual-cross)
LCD	3.2in, 1040K dots
Max burst (buffer)	5fps (14 Raw/510 JPEG)
Memory card	CompactFlash + SD/SDHC/SDXC

CANON EOS-1D X MARK II



CANON'S Mark II flagship full-frame pro-level EOS boasts ultra-fast 14fps shooting (16fps in Live View) and super-high ISO, along with sublime handling. It sports 4K video, body build quality is rock-solid, yet its 20Mp image resolution is relatively modest when compared to the 50Mp 5DS/R. ★★★★★

TESTED IN ISSUE 124 PRICE: £4799/\$5999

Sensor	20.2Mp, full-frame (5472x3648 pixels)
Viewfinder	Pentaprism, 0.76x, 100%
ISO	100-51,200 (50-409,600 expanded)
AF	61-point (41 cross-type, 5 dual-cross)
LCD	3.2in, 1620K dots
Max burst (buffer)	14-16fps (170 Raw/Unlimited JPEG)
Memory card	CompactFlash + CFast

BUYERS' GUIDE

With over 150 lenses available for Canon DSLRs, picking the best for the job can be a minefield. Here's the lowdown on all currently available EOS-fit glass



Choosing lenses

Key factors to watch out for

THE MAIN factors to consider in a lens are its focal length, maximum aperture, and whether or not it's full-frame compatible. We've categorized lenses by focal length range – from wide-angle to telephoto. The larger a lens's maximum aperture, the 'faster' it's considered to be – allowing you to control depth of field more, and offering better options in low light. Zooms are more flexible than primes, but tend not to have such fast maximum apertures. Full-frame lenses will also work with 'crop-sensor' EOS D-SLRs, but crop-sensor lenses aren't compatible with full-frame cameras.

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

WIDE-ANGLE ZOOMS

WIDE-ANGLE ZOOMS

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 8-15mm f/4L Fisheye USM	£1120/\$1250	Yes	1.9x	No	f/4	540g	0.15m	0.34x	None	7	90	★★★★★	
Canon EF-S 10-18mm f/4.5-5.6 IS STM	£215/\$280	No	1.8x	Yes	f/4.5-5.6	240g	0.22m	0.15x	67mm	7	113	★★★★★	●
Canon EF-S 10-22mm f/3.5-4.5 USM	£470/\$650	No	2.2x	No	f/3.5-4.5	385g	0.24m	0.17x	77mm	6	113	★★★★★	
Canon EF 11-24mm f/4L USM	£2700/\$2800	Yes	2.2x	No	f/4	1180g	0.28m	0.16x	None	9	116	★★★★★	
Canon EF 16-35mm f/2.8L III USM	£2100/\$2200	Yes	2.2x	No	f/2.8	790g	0.28m	0.22x	82mm	9	120	★★★★★	
Canon EF 16-35mm f/4L IS USM	£880/\$1000	Yes	2.2x	Yes	f/4	615g	0.28m	0.23x	77mm	9	116	★★★★★	● ●
Canon EF 17-40mm f/4L USM	£720/\$750	Yes	2.4x	No	f/4	500g	0.28m	0.24x	77mm	7	113	★★★★★	
Sigma 8-16mm f/4.5-5.6 DC HSM	£600/\$700	No	2.0x	No	f/4.5-5.6	555g	0.24m	0.13x	None	7	113	★★★★★	
Sigma 10-20mm f/3.5 EX DC HSM	£330/\$450	No	2.0x	No	f/3.5	520g	0.24m	0.15x	82mm	7	113	★★★★★	
Sigma 12-24mm f/4 DG HSM A	£1400/\$1600	Yes	2.0x	No	f/4	1150g	0.24m	0.2x	None	9	122	★★★★★	
Sigma 12-24mm f/4.5-5.6 II DG HSM	£650/\$950	Yes	2.0x	No	f/4.5-5.6	670g	0.28m	0.16x	82mm	9	113	★★★★★	
Sigma 24-35mm f/2 DG HSM A	£760/\$900	Yes	1.5x	No	f/2	940g	0.28m	0.23x	77mm	7	113	★★★★★	
Tamron SP AF 10-24mm f/3.5-4.5 Di II LD	£460/\$500	No	2.4x	No	f/3.5-4.5	406g	0.24m	0.2x	None	9	113	★★★★★	
Tamron SP 15-30mm f/2.8 Di VC USD	£930/\$1200	Yes	2.0x	Yes	f/2.8	1100g	0.28m	0.2x	None	6	87	★★★★	
Tokina 10-17mm f/3.5-4.5 AT-X DX Fisheye	£430/\$530	No	1.7x	No	f/3.5-4.5	350g	0.14m	0.39x	82mm	9		★★★★	
Tokina 11-16mm f/2.8 AT-X PRO DX II	£480/\$500	No	1.8x	No	f/2.8	560g	0.28m	0.12x	77mm	9	87	★★★★	
Tokina 12-28mm f/4 AT-X Pro DX	£450/\$400	No	2.3x	No	f/4	530g	0.25m	0.2x	82mm	9	116	★★★★	
Tokina 14-20mm f/2 AT-X PRO DX	£850/\$800	No	1.43x	No	f/2	750g	0.28m	0.12x	None	9		★★★★	
Tokina 16-28mm f/2.8 AT-X PRO FX	£580/\$690	Yes	1.8x	No	f/2.8	950g	0.28m	0.19x	82mm	9		★★★★	
Tokina 17-35mm f/4 AT-X PRO FX	£570/\$450	Yes	2.1x	No	f/4	600g	0.28m	0.21x	82mm	9		★★★★	

TELEPHOTO ZOOMS

TELEPHOTO ZOOMS

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 55-250mm f/4-5.6 IS STM	£270/\$300	No	4.5x	Yes	f/4-5.6	375g	0.85m	0.29x	58mm	7	123	★★★★★	
Canon EF 70-200mm f/2.8L IS II USM	£2000/\$1950	Yes	2.9x	Yes	f/2.8	1490g	1.2m	0.21x	77mm	8	116	★★★★★	
Canon EF 70-200mm f/2.8L USM	£1330/\$1250	Yes	2.9x	No	f/2.8	1310g	1.5m	0.16x	77mm	8	64	★★★★★	
Canon EF 70-200mm f/4L IS USM	£1050/\$1100	Yes	2.9x	Yes	f/4	760g	1.2m	0.21x	67mm	8	107	★★★★★	
Canon EF 70-200mm f/4L USM	£670/\$650	Yes	2.9x	No	f/4	705g	1.2m	0.21x	67mm	8	123	★★★★★	
Canon EF 70-300mm f/4-5.6 IS USM	£400/\$650	Yes	4.3x	Yes	f/4-5.6	630g	1.5m	0.26x	58mm	8	123	★★★★	
Canon EF 70-300mm f/4-5.6 IS II USM	£500/\$550	Yes	4.3x	Yes	f/4-5.6	710g	1.2m	0.25x	67mm	9	125	★★★★★	
Canon EF 70-300mm f/4-5.6L IS USM	£1030/\$1350	Yes	4.3x	Yes	f/4-5.6	1050g	1.2m	0.21x	67mm	8	117	★★★★★	
Canon EF 70-300mm f/4.5-5.6 DO IS USM	£1380/\$1400	Yes	4.3x	Yes	f/4.5-5.6	720g	1.4m	0.19x	58mm	6	90	★★★★	
Canon EF 75-300mm f/4-5.6 III	£210/\$200	Yes	4.0x	No	f/4-5.6	480g	1.5m	0.25x	58mm	7	15	★★★★	
Canon EF 75-300mm f/4-5.6 III USM	£260/\$190	Yes	4.0x	No	f/4-5.6	480g	1.5m	0.25x	58mm	7	70	★★★★	
Canon EF 100-400mm f/4.5-5.6L IS II USM	£1880/\$2000	Yes	4.0x	Yes	f/4.5-5.6	1640g	0.98m	0.31x	77mm	9	117	★★★★★	
Canon EF 200-400mm f/4L IS USM Extender 1.4x	£10,500/\$11,000	Yes	2.8x	Yes	f/4	3620g	2.0m	0.15x	52mm	9	77	★★★★★	
Sigma 50-500mm f/4.5-6.3 DG OS HSM	£1100/\$1660	Yes	10.0x	Yes	f/4.5-6.3	1970g	0.5-1.8m	0.32x	95mm	9	117	★★★★★	
Sigma 70-200mm f/2.8 EX DG OS HSM	£900/\$1150	Yes	2.9x	Yes	f/2.8	1430g	1.4m	0.13x	77mm	9	107	★★★★★	
Sigma 70-300mm f/4-5.6 DG Macro	£130/\$140	Yes	4.3x	No	f/4-5.6	545g	0.95m	0.5x	58mm	9	123	★★★★	
Sigma APO 70-300mm f/4-5.6 DG Macro	£180/\$180	Yes	4.3x	No	f/4-5.6	550g	0.95m	0.5x	58mm	9	123	★★★★	
Sigma 120-300mm f/2.8 DG OS HSM S	£2700/\$3400	Yes	2.5x	Yes	f/2.8	3390g	1.5-2.5m	0.12x	105mm	9	98	★★★★★	
Sigma 150-600mm f/5-6.3 DG OS HSM C	£800/\$990	Yes	4.0x	Yes	f/5-6.3	1930g	2.8m	0.2x	95mm	9	117	★★★★★	●
Sigma 150-600mm f/5-6.3 DG OS HSM S	£1330/\$2000	Yes	4.0x	Yes	f/5-6.3	2860g	2.6m	0.2x	105mm	9	117	★★★★★	●
Sigma 200-500mm f/2.8 EX DG	£15,000/\$26,000	Yes	2.5x	No	f/2.8	15,700g	2.0-5.0m	0.13x	72mm	9		★★★★★	
Sigma 300-800mm f/5.6 EX DG HSM	£6500/\$6800	Yes	2.7x	No	f/5.6	5880g	6.0m	0.14x	46mm	9		★★★★★	
Tamron SP AF 70-200mm f/2.8 Di VC USD	£1100/\$1500	Yes	2.9x	Yes	f/2.8	1470g	1.3m	0.13x	77mm	9	107	★★★★★	
Tamron SP 70-200mm f/2.8 Di VC USD G2	£1350/\$1300	Yes	2.9x	Yes	f/2.8	1500g	0.95m	0.16x	77mm	9	127	★★★★★	
Tamron AF 70-300mm f/4-5.6 Di LD Macro	£130/\$160	Yes	4.3x	No	f/4-5.6	458g	0.95m	0.5x	62mm	9	123	★★★★	
Tamron SP AF 70-300mm f/4-5.6 Di VC USD	£300/\$450	Yes	4.3x	Yes	f/4-5.6	765g	1.5m	0.25x	62mm	9	123	★★★★★	● ●
Tamron SP 150-600mm f/5-6.3 Di VC USD	£830/\$1000	Yes	4.0x	Yes	f/5-6.3	1951g	2.7m	0.2x	95mm	9	117	★★★★★	
Tamron SP 150-600mm f/5-6.3 Di VC USD G2	£1340/\$1400	Yes	4.0x	Yes	f/5-6.3	2010g	2.2m	0.26x	95mm	9	121	★★★★★	

BUYERS' GUIDE LENSES

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

STANDARD ZOOMS		Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon	EF-S 15-85mm f/3.5-5.6 IS USM	£600/\$800	No	5.7x	Yes	f/3.5-5.6	575g	0.35m	0.21x	72mm	7	84	★★★★★	
Canon	EF-S 17-55mm f/2.8 IS USM	£750/\$800	No	3.2x	Yes	f/2.8	645g	0.35m	0.17x	77mm	7	127	★★★★★	●
Canon	EF-S 18-55mm f/3.5-5.6 IS II	£170/\$200	No	3.1x	Yes	f/3.5-5.6	200g	0.25m	0.34x	58mm	6	110	★★★★	
Canon	EF-S 18-55mm f/3.5-5.6 IS STM	£200/\$250	No	3.1x	Yes	f/3.5-5.6	205g	0.25m	0.36x	58mm	7	110	★★★★★	
Canon	EF 24-70mm f/2.8L II USM	£1900/\$1700	Yes	2.9x	No	f/2.8	805g	0.38m	0.21x	82mm	9	127	★★★★★	●
Canon	EF 24-70mm f/4L IS USM	£800/\$900	Yes	2.9x	Yes	f/4	600g	0.38m	0.7x	77mm	9	93	★★★★★	
Canon	EF 24-105mm f/3.5-5.6 IS STM	£380/\$600	Yes	4.4x	Yes	f/3.5-5.6	525g	0.4m	0.3x	77mm	7			
Canon	EF 24-105mm f/4L IS II USM	£1065/\$1000	Yes	4.4x	Yes	f/4	795g	0.45m	0.24x	77mm	10	127	★★★★★	
Sigma	17-50mm f/2.8 EX DC OS HSM	£330/\$370	No	2.9x	Yes	f/2.8	565g	0.28m	0.2x	77mm	7	127	★★★★★	
Sigma	17-70mm f/2.8-4 DC Macro OS HSM C	£350/\$500	No	4.1x	Yes	f/2.8-4	465g	0.22m	0.36x	72mm	7	127	★★★★★	●
Sigma	18-35mm f/1.8 DC HSM A	£650/\$800	No	1.9x	No	f/1.8	810g	0.28m	0.23x	72mm	9	90	★★★★★	
Sigma	24-70mm f/2.8 IF EX DG HSM	£590/\$750	Yes	2.9x	No	f/2.8	790g	0.38m	0.19x	82mm	9	93	★★★★★	
Sigma	24-105mm f/4 DG OS HSM A	£600/\$900	Yes	4.4x	Yes	f/4	885g	0.45m	0.22x	82mm	9	127	★★★★★	
Tamron	SP AF 17-50mm f/2.8 XR Di II VC	£380/\$650	No	2.9x	Yes	f/2.8	570g	0.29m	0.21x	72mm	7	127	★★★★★	
Tamron	SP AF 24-70mm f/2.8 Di VC USD	£800/\$1300	Yes	2.9x	Yes	f/2.8	825g	0.38m	0.2x	82mm	9	127	★★★★★	●
Tamron	SP AF 28-75mm f/2.8 XR Di	£450/\$500	Yes	2.7x	No	f/2.8	510g	0.33m	0.26x	67mm	7	57	★★★★	

STANDARD ZOOMS

SUPERZOOMS		Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon	EF-S 18-135mm f/3.5-5.6 IS STM	£380/\$400	No	7.5x	Yes	f/3.5-5.6	480g	0.39m	0.28x	67mm	7	92	★★★★★	
Canon	EF-S 18-200mm f/3.5-5.6 IS	£440/\$700	No	11.1x	Yes	f/3.5-5.6	595g	0.45m	0.24x	72mm	6	92	★★★★★	
Canon	EF 28-300mm f/3.5-5.6L IS USM	£2250/\$2450	Yes	10.7x	Yes	f/3.5-5.6	1760g	0.7m	0.30x	77mm	8	6	★★★★★	
Sigma	18-200mm f/3.5-6.3 DC Macro OS HSM C	£290/\$400	No	11.1x	Yes	f/3.5-6.3	430g	0.39m	0.33x	62mm	7	92	★★★★★	
Sigma	18-250mm f/3.5-6.3 DC Macro OS HSM	£350/\$350	No	13.9x	Yes	f/3.5-6.3	470g	0.35m	0.34x	62mm	7	92	★★★★★	●
Sigma	18-300mm f/3.5-6.3 DC Macro OS HSM C	£370/\$500	No	16.7x	Yes	f/3.5-6.3	585g	0.39m	0.33x	72mm	7			
Tamron	16-300mm f/3.5-6.3 Di II VC PZD Macro	£430/\$550	No	18.8x	Yes	f/3.5-6.3	540g	0.39m	0.34x	67mm	7	92	★★★★★	●
Tamron	18-200mm f/3.5-6.3 Di II VC	£190/\$200	No	11.1x	Yes	f/3.5-6.3	400g	0.49m	0.25x	62mm	7	110	★★★★★	
Tamron	AF 18-270mm f/3.5-6.3 Di II VC PZD	£300/\$450	No	15.0x	Yes	f/3.5-6.3	450g	0.49m	0.26x	62mm	7	92	★★★★★	
Tamron	28-300mm f/3.5-6.3 Di VC PZD	£600/\$850	Yes	10.7x	Yes	f/3.5-6.3	540g	0.49m	0.29x	67mm	7			

SUPERZOOMS

WIDE-ANGLE PRIMES		Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon	EF 14mm f/2.8L II USM	£2000/\$2100	Yes	None	No	f/2.8	645g	0.2m	0.15x	None	6			
Canon	TS-E 17mm f/4L (tilt & shift)	£2000/\$2150	Yes	None	No	f/4	820g	0.25m	0.14x	77mm	8	90	★★★★★	
Canon	EF 20mm f/2.8 USM	£450/\$540	Yes	None	No	f/2.8	405g	0.25m	0.14x	72mm	5	114	★★★★★	
Canon	EF 24mm f/1.4L II USM	£1500/\$1550	Yes	None	No	f/1.4	650g	0.25m	0.17x	77mm	8			
Canon	EF 24mm f/2.8 IS USM	£430/\$550	Yes	None	Yes	f/2.8	280g	0.2m	0.23x	58mm	7	114	★★★★★	
Canon	EF-S 24mm f/2.8 STM	£140/\$150	No	None	No	f/2.8	125g	0.16m	0.27x	52mm	7	110	★★★★★	
Canon	TS-E 24mm f/3.5L II (tilt & shift)	£1690/\$1900	Yes	None	No	f/3.5	780g	0.21m	0.34x	82mm	8			
Canon	EF 28mm f/1.8 USM	£420/\$510	Yes	None	No	f/1.8	310g	0.25m	0.18x	58mm	7	67	★★★★	
Canon	EF 28mm f/2.8 IS USM	£390/\$500	Yes	None	Yes	f/2.8	260g	0.23m	0.2x	58mm	7	114	★★★★★	
Canon	EF 35mm f/1.4L II USM	£1800/\$1700	Yes	None	No	f/1.4	760g	0.28m	0.21x	72mm	9	116	★★★★★	
Canon	EF 35mm f/2 IS USM	£470/\$600	Yes	None	Yes	f/2	335g	0.24m	0.24x	67mm	8	114	★★★★★	●
Peleng	8mm f/3.5 Fisheye	£250/\$215	Yes	None	No	f/3.5	400g	0.22m	0.13x	None				
Peleng	17mm f/2.8 Fisheye	£290/\$290	Yes	None	No	f/2.8	630g	0.3m		None				
Samyang	8mm f/3.5 IF MC CSII DH Circular	£240/\$260	No	None	No	f/3.5	435g	0.3m	N/S	None	6			
Samyang	10mm f/2.8 ED AS NCS CS	£350/\$400	No	None	No	f/2.8	600g	0.25m	N/S	None	6			
Samyang	12mm f/2.8 ED AS NCS Diagonal	£360/\$470	Yes	None	No	f/2.8	530g	0.2m	N/S	None	7			
Samyang	14mm f/2.8 IF ED UMC	£300/\$330	Yes	None	No	f/2.8	560g	0.28m	N/S	None	6	74	★★★★	
Samyang	16mm f/2 ED AS UMC CS	£330/\$360	No	None	No	f/2	590g	0.2m	N/S	77mm	8			
Samyang	24mm f/1.4 ED AS UMC	£480/\$470	Yes	None	No	f/1.4	680g	0.25m	N/S	77mm	8			
Samyang	T-S 24mm f/3.5 ED AS UMC (tilt & shift)	£680/\$760	Yes	None	No	f/3.5	680g	0.2m	N/S	82mm	8	90	★★★★★	
Samyang	35mm f/1.4 AS UMC AE	£430/\$480	Yes	None	No	f/1.4	660g	0.3m	N/S	77mm	8	100	★★★★★	
Schneider	28mm f/4.5 PC-TS (tilt & shift)	£4980/\$6000	Yes	None	No	f/4.5	1560g	0.15m	0.16x	122mm				
Sigma	4.5mm f/2.8 EX DC HSM Circular Fisheye	£700/\$900	No	None	No	f/2.8	470g	0.14m	0.17x	None	6	87	★★★★★	
Sigma	8mm f/3.5 EX DG Circular Fisheye	£700/\$900	Yes	None	No	f/3.5	400g	0.14m	0.22x	None	6	87	★★★★★	●
Sigma	10mm f/2.8 EX DC HSM Diagonal Fisheye	£600/\$600	No	None	No	f/2.8	475g	0.14m	0.11x	None	7	87	★★★★★	
Sigma	15mm f/2.8 EX DG Diagonal Fisheye	£600/\$610	Yes	None	No	f/2.8	370g	0.15m	0.26x	None	7	44	★★★★★	
Sigma	20mm f/1.4 DG HSM A	£700/\$900	Yes	None	No	f/1.4	950g	0.28m	0.14x	77mm	9	114	★★★★★	
Sigma	24mm f/1.4 DG HSM A	£650/\$850	Yes	None	No	f/1.4	665g	0.25m	0.19x	77mm	9	114	★★★★★	●
Sigma	35mm f/1.4 DG HSM A	£650/\$900	Yes	None	No	f/1.4	665g	0.3m	0.19x	67mm	9	100	★★★★★	●
Tamron	SP 35mm f/1.8 Di VC USD	£600/\$600	Yes	None	Yes	f/1.8	480g	0.2m	0.4x	67mm	9	114	★★★★★	
Voigtlander	20mm f/3.5 Color-Skopar SL II	£505/\$500	Yes	None	No	f/3.5	240g	0.2m	N/S	52mm	9			
Voigtlander	28mm f/2.8 Color-Skopar	£440/\$480	Yes	None	No	f/2.8	230g	0.22m	N/S	52mm	9			
Zeiss	Milvus 15mm f/2.8 ZE	£2330/\$2700	Yes	None	No	f/2.8	947g	0.25m	0.11x	95mm	9			
Zeiss	Distagon T* 18mm f/3.5 ZE	£1090/\$1395	Yes	None	No	f/3.5	510g	0.3m	0.08x	82mm	9	44	★★★★★	●
Zeiss	Milvus 18mm f/2.8 ZE	£1850/\$2300	Yes	None	No	f/2.8	721g	0.25m	0.1x	77mm	9			
Zeiss	Milvus 21mm f/2.8 ZE	£1400/\$1850	Yes	None	No	f/2.8	851g	0.22m	0.2x	82mm	9			
Zeiss	Distagon T* 25mm f/2 ZE	£1270/\$1700	Yes	None	No	f/2	600g	0.25m	0.17x	67mm	9			
Zeiss	Distagon T* 28mm f/2 ZE	£980/\$1285	Yes	None	No	f/2	580g	0.24m	0.21x	58mm	9			
Zeiss	Otus 28mm f/1.4 ZE	£3500/\$5000	Yes	None	No	f/1.4	1350g	0.3m	0.2x	95mm	9			
Zeiss	Distagon T* 35mm f/1.4 ZE	£1300/\$1845	Yes	None	No	f/1.4	850g	0.3m	0.2x	72mm	9			
Zeiss	Milvus f2/35 ZE	£830/\$1120	Yes	None	No	f/2	702g	0.3m	0.19x	58mm	9	114	★★★★★	

WIDE-ANGLE PRIMES

BUYERS' GUIDE

Contacts

- Canon** www.canon.co.uk
- Peleng** www.digitaltoyshop.co.uk
- Samyang** www.samyang-lens.co.uk
- Schneider** www.linhofstudio.com
- Sigma** www.sigma-imaging-uk.com
- Tamron** www.tamron.co.uk
- Tokina** www.tokinale.com
- Voigtlander** www.robertwhite.co.uk
- Zeiss** www.zeiss.co.uk

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

STANDARD PRIMES

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 40mm f/2.8 STM	£200/\$180	Yes	None	No	f/2.8	130g	0.3m	0.18x	52mm	7	126	★★★★	
Canon TS-E 45mm f/2.8 (tilt & shift)	£1200/\$1400	Yes	None	No	f/2.8	645g	0.4m	0.16x	72mm	8		★★★★	
Canon EF 50mm f/1.2L USM	£1370/\$1350	Yes	None	No	f/1.2	580g	0.45m	0.15x	72mm	8	103	★★★★	
Canon EF 50mm f/1.4 USM	£350/\$330	Yes	None	No	f/1.4	290g	0.45m	0.15x	58mm	8	126	★★★★	
Canon EF 50mm f/1.8 STM	£105/\$125	Yes	None	No	f/1.8	160g	0.35m	0.21x	49mm	7	126	★★★★	●
Samyang 50mm f/1.4 AS UMC	£310/\$350	Yes	None	No	f/1.4	575g	0.45m	N/S	77mm	8		★★★★	
Sigma 30mm f/1.4 DC HSM A	£360/\$500	No	None	No	f/1.4	435g	0.3m	0.15x	62mm	9	100	★★★★	●
Sigma 50mm f/1.4 DG HSM A	£600/\$950	Yes	None	No	f/1.4	815g	0.4m	0.18x	77mm	9	126	★★★★	
Tamron SP 45mm f/1.8 Di VC USD	£600/\$600	Yes	None	Yes	f/1.8	540g	0.29m	0.29x	67mm	9	126	★★★★	
Zeiss Milvus 50mm f/1.4 ZF.2	£950/\$1200	Yes	None	No	f/1.4	922g	0.45m	0.15x	67mm	9		★★★★	
Zeiss Planar T* 50mm f/1.4 ZE	£560/\$725	Yes	None	No	f/1.4	380g	0.45m	0.15x	58mm	9		★★★★	
Zeiss Otus 55mm f/1.4	£2700/\$3990	Yes	None	No	f/1.4	1030g	0.5m	0.15x	77mm	9		★★★★	

TELEPHOTO PRIMES

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 85mm f/1.2L II USM	£1770/\$1900	Yes	None	No	f/1.2	1025g	0.95m	0.11x	72mm	8	116	★★★★	
Canon EF 85mm f/1.8 USM	£340/\$350	Yes	None	No	f/1.8	425g	0.85m	0.13x	58mm	8	126	★★★★	
Canon TS-E 90mm f/2.8 (tilt & shift)	£1240/\$1400	Yes	None	No	f/2.8	565g	0.5m	0.29x	58mm	8		★★★★	
Canon EF 100mm f/2 USM	£410/\$500	Yes	None	No	f/2	460g	0.9m	0.14x	58mm	8	46	★★★★	
Canon EF 135mm f/2L USM	£940/\$1000	Yes	None	No	f/2	750g	0.9m	0.19x	72mm	8		★★★★	
Canon EF 200mm f/2L IS USM	£5400/\$5700	Yes	None	Yes	f/2	2520g	1.9m	0.12x	52mm	8	98	★★★★	
Canon EF 200mm f/2.8L II USM	£700/\$750	Yes	None	No	f/2.8	765g	1.5m	0.16x	72mm	8	98	★★★★	
Canon EF 300mm f/2.8L IS II USM	£5800/\$6100	Yes	None	Yes	f/2.8	2400g	2.0m	0.18x	52mm	9	54	★★★★	
Canon EF 300mm f/4L IS USM	£1140/\$1350	Yes	None	Yes	f/4	1190g	1.5m	0.24x	77mm	8	117	★★★★	
Canon EF 400mm f/2.8L IS II USM	£9900/\$10,000	Yes	None	Yes	f/2.8	3850g	2.7m	0.17x	52mm	9	54	★★★★	
Canon EF 400mm f/4 DO IS II USM	£7000/\$6900	Yes	None	Yes	f/4	2100g	3.3m	0.13x	52mm	9		★★★★	
Canon EF 400mm f/5.6L USM	£1180/\$1180	Yes	None	No	f/5.6	1250g	3.5m	0.12x	77mm	8	117	★★★★	
Canon EF 500mm f/4L IS II USM	£8400/\$9000	Yes	None	Yes	f/4	3190g	3.7m	0.15x	52mm	9		★★★★	
Canon EF 600mm f/4L IS II USM	£11,350/\$11,500	Yes	None	Yes	f/4	3920g	4.5m	0.15x	52mm	9		★★★★	
Canon EF 800mm f/5.6L IS USM	£11,900/\$13,000	Yes	None	Yes	f/5.6	4500g	6.0m	0.14x	52mm	8		★★★★	
Samyang 85mm f/1.4 IF MC	£300/\$270	Yes	None	No	f/1.4	513g	1.0m	N/S	72mm	8		★★★★	
Samyang 135mm f/2 ED UMC	£370/\$530	Yes	None	No	f/2	830g	0.8m	N/S	77mm	9		★★★★	
Samyang 500mm MC IF f/6.3 Mirror	£125/\$150	Yes	None	No	f/6.3	705g	2.0m	N/S	95mm	0		★★★★	
Samyang 800mm MC IF f/8 Mirror	£170/\$190	Yes	None	No	f/8	870g	3.5m	N/S	30mm	0		★★★★	
Sigma 85mm f/1.4 DG HSM A	£1000/\$1200	Yes	None	No	f/1.4	TBA	0.85m	0.12x	86mm	9	126	★★★★	
Sigma APO 300mm f/2.8 EX DG HSM	£2600/\$3400	Yes	None	No	f/2.8	2400g	2.5m	0.13x	46mm	9	98	★★★★	
Sigma APO 500mm f/4.5 EX DG HSM	£3600/\$4400	Yes	None	No	f/4.5	3150g	4.0m	0.13x	46mm	9		★★★★	
Sigma 500mm f/4 DG OS HSM S	£5000/\$6000	Yes	None	Yes	f/4	TBA	3.5m	0.15x	46mm	9	9	★★★★	
Sigma APO 800mm f/5.6 EX DG HSM	£5000/\$6600	Yes	None	No	f/5.6	4.9kg	7.0m	0.11x	46mm	9	21	★★★★	
Tamron SP 85mm f/1.8 Di VC USD	£750/\$750	Yes	None	Yes	f/1.8	700g	0.8m	0.14x	67mm	9	126	★★★★	●
Zeiss Milvus 85mm f/1.4 ZE	£1380/\$1800	Yes	None	No	f/1.4	1280g	0.8m	0.14x	77mm	9		★★★★	
Zeiss Milvus 135mm f/2 ZE	£1900/\$2200	Yes	None	No	f/2	1123g	0.8m	0.28x	77mm	9		★★★★	

MACRO

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 60mm f/2.8 Macro USM	£400/\$400	No	None	No	f/2.8	335g	0.20m	1.0x	52mm	7	118	★★★★	
Canon MP-E65mm f/2.8 1-5x Macro	£980/\$1050	Yes	None	No	f/2.8	710g	0.24m	5.0x	58mm	6	50	★★★★	
Canon EF 100mm f/2.8 Macro USM	£460/\$600	Yes	None	No	f/2.8	600g	0.31m	1.0x	58mm	8	118	★★★★	
Canon EF 100mm f/2.8L Macro IS USM	£860/\$800	Yes	None	Yes	f/2.8	625g	0.3m	1.0x	67mm	9	118	★★★★	
Canon EF 180mm f/3.5L Macro USM	£1330/\$1400	Yes	None	No	f/3.5	1090g	0.48m	1.0x	72mm	8	69	★★★★	
Sigma Macro 105mm f/2.8 EX DG OS HSM	£320/\$620	Yes	None	Yes	f/2.8	725g	0.31m	1.0x	62mm	9	118	★★★★	●
Sigma APO Macro 150mm f/2.8 EX DG OS HSM	£780/\$1100	Yes	None	Yes	f/2.8	1150g	0.38m	1.0x	72mm	9	118	★★★★	
Sigma APO Macro 180mm f/2.8 EX DG OS HSM	£1250/\$1700	Yes	None	Yes	f/2.8	1640g	0.47m	1.0x	86mm	9	102	★★★★	
Tamron SP AF 60mm f/2 Di II LD (IF) Macro	£350/\$525	No	None	No	f/2	350g	0.23m	1.0x	55mm	7	118	★★★★	
Tamron SP AF 90mm f/2.8 Di Macro	£350/\$500	Yes	None	No	f/2.8	400g	0.29m	1.0x	55mm	9	102	★★★★	
Tamron SP AF 90mm f/2.8 Di USD Macro	£600/\$650	Yes	None	Yes	f/2.8	610g	0.3m	1.0x	62mm	9	118	★★★★	●
Tamron SP AF 180mm f/3.5 Di Macro	£800/\$740	Yes	None	No	f/3.5	985g	0.47m	1.0x	72mm	7	69	★★★★	
Tokina 100mm f/2.8 AT-X PRO Macro	£350/\$410	Yes	None	No	f/2.8	540g	0.3m	1.0x	55mm	9	118	★★★★	
Zeiss Makro Planar T* 50mm f/2 ZE	£950/\$1285	Yes	None	No	f/2	570g	0.24m	0.5x	67mm	9		★★★★	
Zeiss Milvus Makro Planar 100mm f/2 ZE	£1300/\$1840	Yes	None	No	f/2	843g	0.44m	0.5x	67mm	9	50	★★★★	
Zeiss Makro Planar 100mm f/2 T* ZE	£1400/\$1545	Yes	None	No	f/2	680g	0.44m	0.5x	67mm	9		★★★★	

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- Summer Landscape Special: Top Canon pros share their secrets to taking great shots
- Super Test: Get yourself an all-in-one superzoom lens



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LAST MONTH



Issue 126 May 2017

MASTER your DSLR – every essential Canon EOS camera control, setting and mode exposed and explained

- Apprentice: better shots of buildings
- Interview: Clive Booth
- Super Test: portrait primes
- Full Test: Canon EOS 800D
- Mini Test: photography hides
- Canon School: outdoor flash
- My Kit: Albert Palmer
- Projects on: levitation, HSS flash, in-camera multiple exposure, custom bokeh



Issue 125 Spring 2017

LIGHTING setups for your best-ever portrait shots

- Apprentice: wildlife with Chris Robins
- Interview: Clive Nichols
- Super Test: fantastic flashguns
- Full Test: Canon EF 70-300mm f/4-5.6 IS II USM
- Mini Test: poster prints
- Canon School: upgrade to class glass
- My Kit: Nina Mace
- David Noton: Cheddar Gorge
- Projects on: pop art tarts, moonlit landscapes, reversing rings, use a white balance filter



Issue 124 April 2017

CELEBRATE the 30th anniversary of EOS cameras

- Apprentice: tips and tricks for motorsports shots
- Interview: Fernando Guerra
- Super Test: full-frame cameras
- Preview: Canon EOS 77D and 800D
- Canon School: tidy up street shots
- My Kit: Drew Buckley
- David Noton: a pro in Paris
- Projects on: capturing the Northern Lights, atmospheric candlelit portraits, sparkly long exposures, abstract close-ups

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Issue 123
March 2017

MAKE the most of winter wildlife ● Apprentice: macro maestro Alex Hyde ● Interview: Simon Bruty ● Super Test: budget telephoto lenses ● Mini Test: Lightroom and Photoshop plug-ins ● Canon School: multiple exposures ● My Kit: Guy Edwardes ● David Noton: Dorset's Jurassic Coast ● Projects on: create your own DIY fog, local city landmarks by night, magical frost, give images the look of classic prints



Issue 122
February 2017

COMPLETE guide to your Canon camera ● Apprentice: winter sports in Val Thorens ● Interview: David Clapp ● Lens Test: Sigma 12-24mm f/4 DG HSM A ● Mini Test: Cloud Storage ● Full test: Canon EOS M5 ● Canon School: manual mode ● My Kit: Jeff Ascough ● David Noton: Iceland ● Projects on: symmetrical light paintings, flour-filled portraits, capturing tonal range, add in light stencils



Issue 121
January 2017

PRO TIPS for stunning nite-time cityscapes ● Apprentice: creative portrait lighting ● Interview: Angela and Jonathan Scott ● Mini Test: laptops ● Full Test: Adobe Photoshop Elements 15 ● Canon School: multiple flashes ● My Kit: Viv Koren ● David Noton: Denver ● Projects on: scrumptious food photos, tint shadows and highlights, setting up a selfie station, studio flash



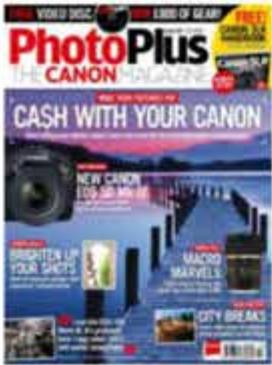
Issue 120
December 2016

MASTER your DSLR in 48 hours ● Apprentice: the beautiful Peak District ● Interview: Timothy Allen ● Super Test: SLRs for starters ● Mini Test: HDR software ● Full test: Canon EF 16-35mm f/2.8L III ● Canon School: night-time tips ● My Kit: Simon Butterworth ● David Noton: the Andes ● Projects on: beautiful boudoir, kids portraits without the hassle, long-exposure seascapes, mono triptychs



Issue 119
November 2016

BE inspired to shoot your best autumn imagery ● Apprentice: on safari in the Masai Mara ● Interview: Andy Farrer ● Super Test: pivot tripods ● Mini Test: Photo backpacks ● Full test: Canon EOS 5D Mark IV ● Canon School: take control of sharpness ● My Kit: Niels van Gijn ● David Noton: misty Welsh valleys ● Projects on: arty aircraft take-offs, the fun of the fair, creating a panosphere, cool solarized flower effects



Issue 118
October 2016

MAKE cash with your Canon ● Apprentice: an Amsterdam city break ● Interview: Steve Bloom ● Super Test: macro lenses ● Mini Test: A4 photo printers ● Big preview: Canon EOS 5D Mark IV ● Canon School: control your camera without wires ● My Kit: Steve and Ann Toon ● David Noton: Croatia ● Projects on: surreal self-portraits, dynamic action shots, exposure compensation, product shots in natural light



Issue 117
September 2016

CAPTURE the most dramatic sporting moments ● Apprentice: shooting jets ● Interview: Michael Poliza ● Super Test: wildlife lenses ● Mini Test: portable hard drives ● Lens test: Tamron SP 90mm f/2.8 Di Macro ● Canon School: Live View tips ● My Kit: Aaron Fiora ● David Noton: Provence ● Projects on: food-inspired artwork, pop-up backgrounds, metering modes, improving sunrise images



Issue 116
August 2016

ULTIMATE guide to wedding photography ● Apprentice: delve into a astrophotography masterclass ● Interview: Christa Meola ● Super Test: Canon's sharpest lenses ● Mini Test: sturdy tripods ● Canon School: Dynamic range explained ● My Kit: Tony Worobiec ● David Noton: Myanmar ● Projects on: garden bird photography, life in a goldfish bowl, home printing, making use of leading lines



Issue 115
July 2016

EXPLORE the wonders of wildlife ● Apprentice: perfect pooch portraits ● Interview: Lara Jade ● My Kit: Amanda Thomas ● Super Test: filter systems ● Mini Test: panoramic tripod heads ● Full test: Canon EOS-1D X Mk II ● Canon School: wide-angle lenses ● David Noton: Spain ● Projects on: stunning underwater portraits, fruity backlit shots, low-light music gigs, woodland flower scenes



Issue 114
June 2016

THE best 50 travel photo tips and techniques ● Apprentice: gritty monochrome portraits ● Interview: Lorenzo Agius ● Super Test: wide prime lenses ● Mini Test: Canon Powershots ● Full test: Canon EOS 1300D ● Canon School: telephoto lenses ● David Noton: South Africa's Western Cape ● Projects on: custom picture styles, ND filters, selectively adjust colours, create Instagram-style filters



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DSLR Lenses - Canon, Sigma & Tamron

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ProTactic BP 250 AW Backpack

Perfect for carrying a compact system camera with 12-40mm lens attached, 3-4 lenses/filters, an 11" MacBook Air, plus small accessories.

BP 250 AW £139
BP 450 AW £199

Lowepro DroneGuard BP 450 AW Backpack

The bag can hold a DJI Phantom or 3DR Solo, up to a 10" tablet, props, battery, RC transmitter, cables, manual, tools, other essentials.

DroneGuard BP: 450 AW £199

Manfrotto
 Imagine More

Manfrotto Reloader 55 Pro Reflex Dag

Pro Light Flip-Stop nylon fabric with water-repellent coating to provide extra protection. This comfortable, stylish bag is ideal to travel with.

Reloader 55 £279

Atomrac

Anvil Slim Professional Backpack

Perfect for carrying compact digital SLR or compact system camera (with lens attached), plus several additional lenses. Batches, accessories and a 10" laptop.

Anvil Slim £139
Anvil Super £139
Anvil Pro £149

Billingham

Hedley: Canvas/Leather Khaki/Tan, Black/Tan, Black/Black, FibreNyte/Leather Khaki/Tan, Sage/Tan, Black/Black.

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Digital £119
Small £149
Large £154
Pro Original £189
Hedley One £265

Tripods & Heads

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 • 9cm Min Height

BSS Series:

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MT190XPRO3	£319
• 3-Pro Ball Head + Bag	
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Carbon Fibre	
MT190XPRO4	£349
Carbon Fibre	

MT190XPRO3 £149
MT190XPRO4 £179
Carbon Fibre £299
MT190XPRO4 £319
Carbon Fibre £319
MT190XPRO3 £139
+ 496C2 Ball Head £139
MT190XPRO4 £189
+ 496C2 Ball Head £189

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58mm	£26.99	49mm	£10.99
62mm	£31.99	52mm	£10.99
67mm	£34.99	55mm	£10.99
72mm	£38.99	58mm	£11.99
77mm	£40.99	62mm	£13.99
82mm	£49.99	67mm	£15.99
		72mm	£17.99
		77mm	£20.99
		82mm	£22.99

HMC UV(C) Filters:

37mm	£10.99
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Long Exposure Filters:

Big Stopper 10x £99
Little Stopper 6x £99

TIFFEN

APEX Long Exposure Filters:

52mm	£59
55mm	£52.99
58mm	£56.99
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67mm	£79.99
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77mm	£90.99

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Canon EOS 1DX MKII

Full Frame

Body only price
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Canon EOS 7D MKII

APS-C

Body only
£1239



Canon EOS M5

APS-C

Body only **£997**
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Body only price
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APS-C

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 Plus 18-135 STM **£1199**



Canon EOS M5

APS-C

M5 + 18-150
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Canon EOS 800D

APS-C

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 Plus 18-55 STM **£849**



Canon EOS M6

APS-C

Body only **£727**
 Plus 15-45 STM **£837**
 Plus 18-150 STM **£1077**



Canon EOS Full Frame Bodies

EOS 5DsR body.....	£2897
EOS 5Ds body.....	£2555
EOS 6D body.....	£1398
EOS 6D + 24-105 F3.5/5.6 IS U STM ...	£1697

Canon EOS APS-C Cameras

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EOS 80D + 18-135 STM	£1199
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EOS 750D + 18-55 STM.....	£648
EOS 750D + 18-135 STM.....	£848
EOS 1300D + 18-55 IS.....	£319

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EOS M3 + 15-45.....	£399
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15-45 F3.5/6.3 IS STM.....	£219
18-55 F3.5/5.6 IS STM.....	£199
18-150 F3.5/6.3 IS STM.....	£389
22 f2 STM.....	£198
28 f2.8 Macro IS.....	£289
55-200 F4.5/6.3 IS STM.....	£268

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20 F2.8 USM.....	£447
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24-70 F4 L IS USM.....	£797
24-105 F4 L IS USM MKII..	£1064
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40 F2.8 STM	£159
50 F1.2 L USM	£1297
50 F1.4 USM	£319
50 F1.8 STM	£99
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70-200 F2.8 non IS L USM.	£1297
70-200 F4 L IS USM.....	£1148
70-200 F4 L USM.....	£658
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70-300 F4/5.6 IS USM II...	£477
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200-400 F4 IS L USM ...	£10397
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300 F2.8 IS L USM II	£5797
300 F4 L IS USM.....	£1278
400 F2.8 IS L USM II	£9497
400 F4 DO II IS USM	£6666
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500 F4 IS L USM II.....	£8297
600 F4 IS L USM II.....	£11348
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MT-24 EXII.....	£737
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600EX-RT II Speedlight ...	£499
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BG-E14 (fit 80D).....	£137
BG-E13 (fit 6D).....	£168

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24-35 F2 DG HSM Art.....	£759	100-400 F5-6.3 DG OS.....	

HSM Contemporary	£ASK
105 F2.8 EX DG OS HSM	£359
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150 F2.8 EX DG OS.....	£799
150-600 F5/6.3 OS Contemp ..	£799



150-600 F5/6.3 OS Sport.....	£1329
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TC2001 converter.....	£299
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70-200 F2.8 Di VC USD G2.....	£1349

70-300 F4/5.6 Di VC USD.....	£296
70-300 F4/5.6 Di AF.....	£128
85 f1.8 SP Di VC USD.....	£748



150-600 F5/6.3 VC USD G2.....	£1349
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550D body box	£199
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60D body box	£399
50D body box	£299
40D body box	£149
20D body box	£99
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BG-E2N	£49
BG-E4 box	£69
BG-E5	£49
BG-E7	£79
BG-E8	£69
BG-E11 box	£169
BG-E16 box	£169
EOS M3 + 18-55	£329
EOS M body	£99

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EOS 600 body	£39
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2x extender MKII box	£239
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28-135 F3.8/5.6	£99
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120-300 F2.8 EX DG	£799
120-400 F4/5.6 DG	£399
150 F2.8 EX DG OS mac	£549
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150-600 F5/6.3 Contemp	£699
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1.4x converter	£99
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VCL	£169
TAM 28-75 F2.8 XR Di	£199
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TAM 200-500 F5/6.3	£449
TOK 100 F2.8 ATX	£299
Zeiss 50 F1.4 ZE box	£599

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50 F2	£49
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FOCUSPOINT

We'd love to hear your thoughts on the mag and all things photographic! Email us at photoplus@futurenet.com

Awesome architecture

The Apprentice article in issue 126 was inspirational. It was great to see how you could still take nice photos of Wells Cathedral despite it being a dull day. I plan to put a few of the techniques into practice when I next visit our local church. *Barney Bell, Wolverhampton*

Mobile imaging

I thought I'd send you this close-up shot of a part of our new dining room table! I took it on my Canon 70D with a Sigma 105mm macro lens. I've recently subscribed to Photoshop CC using the discount I get for being a *PhotoPlus* subscriber, and this is the first time I've tried editing on Lightroom mobile. I sent the shot directly from my camera to my iPad and converted it to black and white. *Karen Hicks, Saltash, Cornwall*



Glad you're taking advantage of the exclusive offers and discounts you get as part of your subscription and PhotoClub membership, Karen, and thanks for sharing your lovely artistic image, and hi-tech way you edited it.

Has anyone else tried their hand at editing their images on a tablet?

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THE SOCIAL NETWORK

The most popular stories found on the web this month



Get more from your Canon

To help you get to the grips with your EOS, here are 49 essential Canon DSLR tips and tricks specifically for getting more efficient use from your Canon. <http://bit.ly/49eostips> from www.techradar.com



Canon 300mm f/1.8 lens!

This is the Canon 300mm f/1.8. That's right: f/1.8. This is one of the rarest Canon lenses in existence. It's an extremely huge and heavy lens, and so few exist that you'll probably never come across one in real life. http://bit.ly/300mm_lens via *PhotoPlus* Facebook page



Coffee break tutorials

Brush up on your editing skills with Adobe's Lightroom Coffee Breaks. Watch the series for their greatest tips <http://bit.ly/2pMS5r7> via *Digital Camera World's* Facebook page

PhotoPlus The month in numbers

10

aperture blades inside the Canon EF 24-105mm f/4L IS II USM lens (p106)

30

years as a photojournalist for Michael 'Nick' Nichols (p66)

1/1000

second shutter speed for shooting splashes (p46)

18-55

mm basic kit lens one reader used to take great motorsports shots (p76)

6

pieces of kit Henrik Spranz can't live without (p78)

11

techie questions answered in EOS SOS this issue (p91)

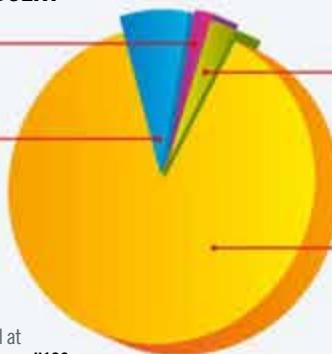
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