



Phones for photos

Almost every mobile phone now comes with a built-in camera – but Which? lab tests show that their quality varies enormously

Having a camera built into your mobile is incredibly handy. It saves lugging around a separate digital camera that could get lost or stolen and, since most people carry their mobile phone with them all the time, it's easy to take a snap with it whenever you spot a photo opportunity.

Most camera phones are unlikely to make serious photographers abandon dedicated cameras. However, the photos that camera phones produce are usually good enough for most of us. Which? has found that camera phone quality is improving all the time, with newer models packed with features previously seen only on compact cameras. Camera

phone makers are also engaged in a battle to offer more megapixels, with a spate of 8Mp devices hitting the shops and new 12Mp models being announced.

Choosing the best camera phone

With so many models to choose from, it can be hard to choose the right one. Manufacturers' boasts about megapixels don't help, either – Which? has found that a greater number of megapixels doesn't necessarily mean you'll get better-quality pictures. A camera phone with fewer megapixels, but a high-class lens and the ability to produce brilliant colours may be a better bet than one touting a high megapixel count.

A greater number of megapixels doesn't necessarily mean you'll get better-quality pictures

To help you choose the right camera phone, this report focuses mainly on those mobile phones that score highly for their photographic features.

We've identified the best models if you are mainly going to take pictures in daylight, great phones if you're more likely to take photos in low-light conditions, and two great all-rounders.

We also show you the actual photos we took when testing each of our best camera phones so you can compare them. Plus, we've identified the features to look out for and answered some questions you might have about using a camera phone.

If you're not too interested in cameras and would like to find out about other aspects of a phone's performance, you can find full Which? reviews of more than 160 other mobile phones at www.which.co.uk/mobilephones. ►►

Best for daytime photography



Nokia 6500 Slide £80

Which? test score **74%**

Brand reliability rating **94%**

PROS The 6500 slide has been around for a couple of years, so can be picked up relatively cheaply. Its 3.2Mp camera may not sound impressive, but it's a high-performance version that comes complete with autofocus and Carl Zeiss optics housed in a scratch-resistant stainless-steel sliding case. It produces outstanding photos in daylight, though the lack of a proper flash means that it's less effective in low-light conditions. The fantastic display really brings photos to life, and it has an output for viewing your photos on a TV.

CONS Because this is an older model, it lacks some of the advanced photographic software features found on newer phones. Shutter delay is also poor, even with pre-focus.

Full review www.which.co.uk/nokia6500slide

Available on 3**, O2**, Orange**, T-Mobile**, Vodafone**



In Which? tests, this phone produced the best photo in bright light, with accurate colours and sharp detail



Motorola Z10 £n/a*

Which? test score **68%**

Brand reliability rating **92%**

PROS The Z10 is a kick-slide phone that curves around your face. It replaced the Motorola Z8 last year (so is now available quite cheaply) with one major improvement being the updated camera – an impressive 3.2Mp autofocus model. Photos taken in daylight look great and it's easy to use. The Z10 can shoot video at 30 frames a second and includes software for editing video on the handset.

CONS Low-light and night shots aren't as impressive, as the LED flash gives negligible illumination beyond a few feet. It struggles a bit to reproduce colours accurately. As with many phones, shutter delay is a problem unless you have a chance to pre-focus. It's not available on pay-as-you-go.

Full review www.which.co.uk/motorolaz10

Available on O2**



In our bright-light test, the Z10 produced a good shot, but the colours are duller and the face is darker

Best all-rounders



LG KC780 £n/a*

Which? test score **74%**

Brand reliability rating **93%**

PROS This Best Buy is packed with handy photographic features, including face detection and smile shot, which automatically takes a picture when it determines that the subject is smiling. There's also a beauty mode, that allows you to retouch people's faces. The 8Mp autofocus camera itself is impressive – photos produced by the KC780 in daylight are some of the best we've seen.

CONS Though LG claims the KC780 'can almost see in the dark' thanks to the high ISO of 1600, our tests found that it actually struggles a little in dim light. Shutter delay is also a problem unless you have a chance to pre-focus. Uploading photos directly to the web is slow, as the KC780 isn't 3G capable. It's not available on pay-as-you-go.

Full review www.which.co.uk/lgkc780

Available on O2**, Orange**, T-Mobile**



In our bright-light test, the LG produced very accurate colours, but the portrait lacks a little detail

Photos produced by the KC780 in daylight are some of the best we've seen

Best for low-light photography



The presence of a proper Xenon flash means that the 6220 Classic copes well with dim conditions

Nokia 6220 Classic £150

Which? test score 71%

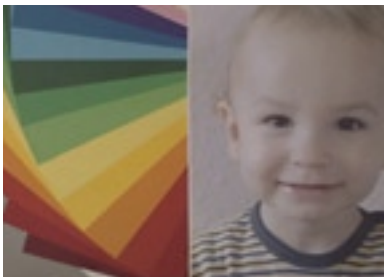
Brand reliability rating 94%

PROS Weighing just 94g, it is easy to slip in your pocket. But it still packs in loads of great features, including fast web access through its HSDPA connection, GPS, a reasonable music player and a 5Mp autofocus camera with a Carl Zeiss lens. Image quality is impressive, and the presence of a proper Xenon flash means that it copes well with dim conditions. The HSDPA connection makes it easy to upload your snaps online or you can play them back through the TV output.

CONS The display is quite small (2.2 inches) for viewing photos. Battery life is good when taking photos, but it only provides around five hours of talk time, and half that on a 3G network.

Full review www.which.co.uk/nokia6220classic

Available on 3, Virgin



The Xenon flash helps, but the 6220's images in our low-light test were still a little dull



which? **BEST BUY**

Nokia N97 £530

Which? test score 81%

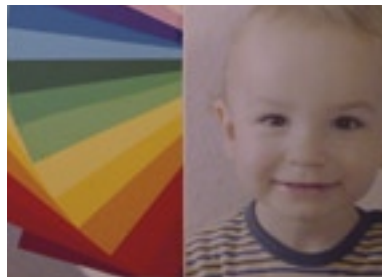
Brand reliability rating 94%

PROS The N97 is Nokia's top-of-the-range smartphone, and it's loaded with advanced features. There's an outstanding music player, a slide-out Qwerty keypad, a GPS receiver and fast web access via Wi-Fi and HSDPA. We were very impressed by the 5Mp autofocus camera with Carl Zeiss lens. Photos taken in daylight look great, and even though it's only got an LED flash, shots taken at night are still reasonable. Images look fantastic on the large 3.5-inch display and the huge 32GB internal memory means you can save thousands of your favourite snaps.

CONS The phone is expensive and heavy (148g). The camera suffers from considerable shutter delay unless you pre-focus before shooting.

Full review www.which.co.uk/nokian97

Available on 3, T-Mobile, Vodafone



The N97's image from our low-light test is the darkest, due to the LED flash. There's also a slight red cast



Sony Ericsson C905 Cyber-shot £300

Which? test score 70%

Brand reliability rating 89%

PROS This was one of the first mobile phones in the UK to include an 8Mp camera. Pictures taken in bright daylight look excellent but it also works well in dim lighting thanks to the Xenon flash. Colours are accurate, and there's little of the noise that often blights photos taken in low-light conditions. Its handy features include face detection and Sony Ericsson's BestPic, which allows you to quickly shoot a flurry of pictures.

CONS Pictures look good on the bright display but, at only 2.4 inches, it's smaller than the screens on some rival camera phones. The buttons on the keypad are small and fiddly, which can make regular phone functions frustrating.

Full review www.which.co.uk/sonyericssonc905

Available on T-Mobile, Vodafone



The best taken in our low-light test. We got good detail, but the face has a slight yellow cast

Camera phone FAQs

All you need to know to take better camera phone photos

Q Are camera phones as good as conventional digital cameras?

A Not yet. So far, mobile phone manufacturers have been unable to fit in lenses or sensors that can match the ones found in regular cameras. Camera phones also lack optical zooms (see 'Features explained', below). However, things are improving, and the photos they take are getting better all the time.

Q Will I notice the difference if I buy a phone with a good camera rather than a basic model?

A In a word, yes. If you compare the test photos taken with any of our six highly rated models against one from a poor-performing camera phone (in this instance, the T-Mobile Vairy Touch), the difference is clear. And you'll notice a much greater contrast if you blow it up rather than just viewing it on the small phone display.

Q When taking photos with my phone I keep missing the action – why is this?

A Many camera phones have a noticeable time lag between when you press the shutter button and when it actually takes the photo – this is known as shutter delay (right). If you like live action shots then you need to pre-focus if possible, by holding the button down half way, or opt for a model with little delay such as the new iPhone 3GS.

Q I've taken a great photo – how do I share it with my friends?

A The simplest way to do this is by picture message. Whenever you take a photo, one of the first options you'll be presented with is 'send'. This will let you zap the photo you have taken straight to the mobile phone of your chosen recipient. Alternatively, you can select photos that you've previously saved and attach them to a new message.

Another option is to send photos to people via email, either using your phone's built-in email service (if you have set one up) or by transferring your images to a computer first (see right). Once your pictures are on your computer, you can also share them in a number of other ways, such as posting them on a photo sharing website

such as Flickr, creating a DVD, or simply printing them out.

Q How do I upload photos on to my computer?

A You need to create a connection between the two devices. The usual way to do this is using a USB cable, which should be supplied with your phone. Otherwise most phones are Bluetooth compatible, so if your computer

also supports Bluetooth, you could pair the two devices and transfer data between them wirelessly.

If you save your photos to a removable memory card in your phone, you could simply pop

this out and slot it into a memory card reader whenever you want to transfer photos. The memory card reader will need to be compatible with the type of card you're using.



If shutter delay is poor, you may miss the action



Removable memory card



Features explained

As camera phones become more advanced, we highlight the key features

MEGAPIXELS Resolution is defined in megapixels (Mp). More megapixels mean more detail, so you can create bigger prints without noticing blockiness (pixelation).



DIGITAL ZOOM Though useful, this can't match the optical zooms found on regular cameras. Digital zooms have a limited range and just enlarge the area in the centre of the image. The more you zoom in, the more the quality of the image deteriorates as it's stretched.

MEMORY If you take lots of snaps, you'll need a reasonable

amount of memory. Some internal memories now hold more than 1GB, but removable memory cards are more common.

PHOTO-ENHANCEMENT TECHNOLOGIES Handy features such as autofocus, image stabilisation, adjustable white balance and red-eye reduction can now be found on some camera phones.



FLASH The best camera phones have Xenon flashes like you'd find on a regular camera. Cheaper models rely on LED lights and LED flashes, but these have a limited range.

MODEL	SPECIFICATION					WHICH? TEST PERFORMANCE						SCORE (%)
	PRICE (£)	CAMERA (Mp)	AUTOFOCUS	XENON FLASH	LED FLASH	IMAGE QUALITY IN DAYLIGHT	IMAGE QUALITY IN DIM LIGHT	SHUTTER DELAY	CAMERA EASE OF USE	CAMERA BATTERY	TOTAL CAMERA RATING	
NOKIA N97	530	5	✓		✓	★★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★★	81
APPLE iPhone 3GS	440	3	✓			★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★	79
SAMSUNG S5230 Tocco Lite	80	3.2				★★★★	★★★	★★	★★★★★	★★★★★	★★★★	75
SONY ERICSSON W705 Walkman	200	3.2			✓	★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★	75
LG KC780	n/a	8	✓		✓	★★★★★	★★★★	★★	★★★★★	★★★★	★★★★★	74
LG KM900 Arena	300	5	✓		✓	★★★★★	★★★★	★★	★★★★	★★★★	★★★★	74
NOKIA 6500 Slide	80	3.2	✓		✓	★★★★★	★★★★	★★	★★★★★	★★★★★	★★★★★	74
SONY ERICSSON C510 Cyber-shot	100	3.2	✓		✓	★★★★★	★★★	★★	★★★★★	★★★★★	★★★★★	73
NOKIA 6220 Classic	150	5	✓	✓		★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	71
SAMSUNG Beat DJ	300	3.2	✓		✓	★★★★★	★★★	★★	★★★★	★★★★★	★★★★	71
HTC Touch Diamond2	n/a	5	✓			★★★★★	★★★	★	★★★★	★★★★★	★★★★	70
SAMSUNG Tocco Ultra Edition	350	8	✓	✓		★★★★★	★★★★	★★★★	★★★★	★★★★	★★★★★	70
SONY ERICSSON C905 Cyber-shot	300	8.1	✓	✓		★★★★★	★★★★★	★★★★	★★★★★	★★★★	★★★★★	70
SONY ERICSSON W395 Walkman	60	2				★★★★	★★★	★★★★★	★★★★★	★★★★	★★★★	69
HTC Magic	n/a	3.2	✓			★★★★	★★★	★★★★	★★★★★	★★★★★	★★★★★	68
MOTOROLA Z10	n/a	3.2	✓		✓	★★★★★	★★★★	★★	★★★★★	★★★★	★★★★★	68
NOKIA 5130 XpressMusic	70	2				★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★	68
LG KF310	80	2				★★★★	★★★	★★	★★★★	★★★★	★★★★	63
T-MOBILE Vairy Touch	49	1.3				★★	★★	★	★★★★	★★★★★	★★	59
NOKIA E75	330	3.2	✓		✓	★★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★★	58

USING THE TABLE**Specification**

Price Typical PAYG price. n/a = available on a contract only, so the price will depend on the contract.

Score

Ignores price and is based on:

Calls and texts **35%**
Handling **25%**

Camera **15%**
Music player **10%**
Internet and email **15%**

The table includes the six models that produce the best-quality photos in good and poor light, plus 14 of our most recently tested phones.

It only includes features and ratings that relate to the phone's

camera. We've also included the total test score of each model and whether it is a Best Buy.

Some of the models we have selected for this report are not Best Buys, because they were chosen on the basis of their performance as camera phones, while our total test score also includes ratings for other aspects of their performance.

Which.co.uk Choosing a mobile phone tariff

Looking for a new mobile phone? Make sure you get the best deal

Which? has found that changing your mobile tariff or mobile provider can save even low mobile users money. Moderate mobile phone users could save around £100 a year by switching from the most expensive to the cheapest pay-as-you-go deal.

The Which? guide to choosing a mobile phone tariff, which you'll find at

www.which.co.uk/mobiletariffs, is packed with information and advice about phone contracts, pay-as-you-go deals, mobile insurance and more.

Three big-name mobile phone providers scored less than 50% in our latest satisfaction surveys – make sure you're not with them at www.which.co.uk/bestmobileprovider.



Contacts

Apple
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LG
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08716412130
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Nokia
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www.nokia.co.uk

Samsung
0870 726 7864
<http://uk.samsungmobile.com>

Sony Ericsson
0870 523 7237
www.sonyericsson.com

T-Mobile
0800 956 2208
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