

Light

Light is the element of photography. In other words, photos are simply light captured from the world around us. This is why bad lighting and exposure are the most common causes of poor photographs. A good photo is sharp – at least where the main subject is concerned – and is well exposed. The colors, which are simply variations of light, also play a pivotal role.

Exposure is influenced by three factors: the aperture, the shutter speed and the ISO value. Compact cameras have the advantage of being able to automatically set the exposure according to the specific situation. These types of cameras have preprogrammed settings for the various apertures and shutter speeds that are needed in different situations, e.g. sunny days or cloudy days. These settings are based on average values that work well in most situations.

However, it is always a good idea to get familiar with the exposure settings of your camera.

Aperture

First we'll look at the aperture. This controls the size of the opening that lets light in. A small aperture lets in only a bit of light and a large aperture lets in a lot of light.

If you focus the camera on something in the distance with a large aperture like 2.8, the foreground will become blurry. This also works in the opposite direction. If you focus on something very close with the same aperture, the background will become blurry.



Here you can see how the large aperture makes the background blurry and accents the main subject. You can read more about this in the section Focus depth (see page 306).

If you want to take a picture of a large landscape, you should focus on a distant point and use a small aperture to make sure that the objects in the foreground and the background are equally sharp.

Shutter speed

The exposure time belongs to the aperture and is also known as the "shutter speed". The shutter speed indicates the length of time that light is allowed into the camera. A short shutter speed corresponds to less light and a longer shutter speed to more light.

A short shutter speed is used for action shots, for example. "Action Mode", which can be found in the program menu, uses an extremely short shutter speed and is a standard preset on most compact cameras. This mode is great for capturing things like people jumping, falling drops of rain or a quick glancing movement.

A longer shutter speed shows a flowing movement and would depict the rain as a constant flow instead of single drops.



Moving water: On the left a sharp image with a short shutter speed, on the right a blurry image with a long shutter speed.

Longer shutter speeds are used in situations like nighttime photography without a flash. Depending on the lighting, it can sometimes take up to several seconds to properly expose a photo at night. In this situation it makes sense to use a tripod to avoid any shaking of the hand.

Try doing some nighttime photography without flash yourself and see what kind of interesting effects you can create with colored lights and lines!



Some cameras also offer the option of combining long shutter speeds with a flash. This can produce some interesting results in certain situations, e.g. party photos that capture all of the movement. The long shutter speed guarantees intense color blurring and the flash ensures that the contours of the subjects remain clear.

Manually adjusting exposure balance

Critical photo situations can be corrected with exposure balance. This is important for photos taken in very bright environments, e.g. sunny winter days with lots of snow around or beach photos. Automatic exposure identifies the lighting as strong and reduces the aperture opening. This can lead to shots of the beach or a winter wonderland being underexposed and too dark. You can adjust the amount of light that is let in using the exposure settings.

„+1“ means that everything will be exposed more brightly. However, if you still end up with underexposed photos there's no need to worry. Thanks to digital photography, almost any problem can be fixed. You can easily brighten your photos when editing them later.

ISO value

The light sensitivity of a microchip is determined by the ISO value which lies somewhere between 100 for strongly lit situations (e.g. sunny days) and 1600 (or even higher in some cases) for night photography without flash. For example, if you want to take photos without flash in situations where the light is weak, you can set the ISO to 800. However, keep in mind that higher ISO settings lead to "image noise".



Here is a photo with a high ISO value and corresponding image noise.

White balance

It is also important to pay close attention to the effect the exposure has on the coloration. Certain lighting conditions lead to color misrepresentations by digital cameras. For example, indoor shots taken under artificial light may look reddish or yellowish; fluorescent light can cause a surreal green tinge.

You can set your camera according to the various light conditions. This is done with the white balance, which can be set to work automatically, half-automatically or manually. Ideally, the camera interprets the lightest point as white and is automatically right.

Because a different color dominates the spectrum at each time of day, it helps to inform the camera about the time of day or light conditions. In incandescent light, for example, reds predominate, while blues are stronger in twilight. Our eye can adjust to these discrepancies, but the camera can't.

For this reason, you should conduct a white balance test. There are automatic camera settings for daylight, twilight, fluorescent light, indoors and outdoors.

In extreme light situations, a manual white balance setting is best. Set the camera to manual white balance mode and point it to a white surface and define it as white.

Use the function labeled "WB" or "White balance". Once you've done this the automatic white balance is blocked and the camera interprets the colors correctly.

In some digital cameras the white balance mode is not clearly marked. The best thing to do is refer to the manual to find out how the white balance works in that particular camera model.

If your camera does not have a white balance feature, you can always adjust it in MAGIX PhotoStory on DVD Deluxe. To find out more about this, please read the „Color“ section in the Effects chapter (see page 121).

Proper illumination

Illumination is the difficult art of positioning light sources in a room in preparation for a photo shoot. Basically there are three different types of light source: keylight, fill light and backlight.

Keylight: This is the main light source. Keylight should be positioned in a way that doesn't confuse the viewer (e.g. Why is the light coming from the right, when all the windows are on the left?).

Fill light: Depending on the angle of incidence on the object, the keylight casts shadows on the surface. If these shadows are not wanted, which is usually the case, they can be reduced using fill light. Fill light should be positioned on the other side of the keylight next to the camera.

Backlight: This light source is used to accent the object in contrast to the background. This is achieved by placing the light so it illuminates the object from behind and never shines directly in the camera.

Other light sources: Other less dominant light sources are often used to add light accents to the background or scenery. This can be accomplished by covering regular light bulbs with paper in order to reduce the amount of light they give off.

Don't mix daylight with artificial light. If you photograph a person who is lit on one side by the sun coming through a window and on the other side by a lamp, even automatic white balance won't be able to remove the resulting color tint. You can reduce this effect by placing a blue filter (e.g. blue plastic film) in front of the artificial light source, but it is often better to simply draw the curtains and eliminate the natural light source.

Amateurs often use cheap halogen flood lights. It is better to use fluorescent lights since they have a very good light yield and don't produce as much heat. They also create a very diffused light which is good for illuminating a room or faces without having a blinding effect. You can further increase the light yield with two long hinged mirrors (approx. 15 cm wide) parallel to the lamps.

Tungsten-halogen lamps are also a good choice because digital cameras can handle the color temperature change. HMI lamps combine high light yield with relatively low heat generation. However, they are expensive and not easy to handle. Professional xenon lamps provide white light, have a stable color temperature and generate relatively low levels of heat, all of which makes them a good choice as a light source for photography.

Using flash



Cameras capture light and flash produces it.

At first these two ideas seem to fit together like a horse and cart, but the reality is that photos taken with flash rarely turn out perfect – night shots don't capture the natural night atmosphere, outdoor daytime shots are usually overexposed and indoor shots lose their natural colors.

Try to keep the following rules in mind:

- Use flash only when absolutely necessary.
- Try to create as much natural light as possible.
- Pay close attention to the distance range of the flash. If it is too close, the photo will be too bright. If it is too far away, it won't have any effect at all. The correct distance range can't be standardized and it is best to refer to your manual to find out the best flash distance range for your camera model.

Most digital cameras have a built-in automatic flash, but normally these are very limited in their usefulness. These built-in flashes are best used as backlighting or to reduce shadows in high contrast illumination situations.

Avoiding red eyes

Flash can often lead to the infamous "red eye effect". You can avoid this problem by using the correct flash setting on your camera. Normally this is indicated with an eye symbol. This setting produces a series of short pre-flashes that close the subject's pupils which are normally wide open in dark environments.

Illuminating with backlight flash

Backlight flash can be used to bring out subjects that are otherwise lost in the shadows created by other light sources. As long as the camera senses enough light, the automatic flash will not be activated. This means that if a subject in the foreground isn't properly illuminated, you have to set the flash manually. The flash will then balance out the backlight and the darker areas will be brightened.

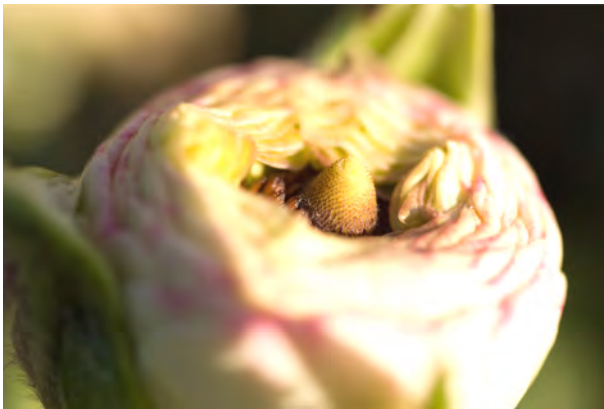
Image composition

If you find that too many of your photos aren't turning out the way you hoped, it's important to take a minute and think about why this is happening. Lighting is often the problem, but sometimes there are many problems and the subject gets lost in the chaos. This is because the human eye has specific visual and aesthetic needs.

The fact that professional photographers can get a great photo even when "shooting from the hip" has more to do with experience and skill than with luck. Good photos often require a lot of patience and the right interplay between lighting, subject, environment and movement.

Choosing a subject: An eye for the shot

Always try to see through the chaos and find a good subject. The beauty is most often in the details. The trick is to get close. Closeness creates intimacy, but it can also lead to questions that can be answered by subsequent photographs.



Most cameras have a macro mode for taking close-up shots. You can use this mode to take photos of small objects up close or to focus in on specific details of a subject.

Tip: When taking macro photographs indoors, it is best to place the camera on a solid base or tripod to avoid shaking.

Image orientation and perspective

Viewers are always looking for an "eyecatcher", i.e. the point in the photo where the focus and sharpness are aimed.



Try to capture your subject from as many perspectives as possible. An interesting perspective shows the subject in its environment and thereby strengthens the message that the photo is meant to convey.

The "bird's eye" perspective shows the subject from above:



This creates a good overview of wide scenarios.