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Sunny 16 rule

With all the sophistication of modern metering systems, it seems like the good old “Sunny 16 Rule” can be dismissed as one of the old relics of the film era. But it is still a valid and useful rule nonetheless, and one that can teach growing photographers about the principles of metering. So if you haven’t heard about the Sunny 16 Rule or just need to brush up on it again, here’s a quick primer on this classic metering rule. The Sunny 16 Rule is a way to meter for correct exposure during daylight without using the camera’s meter. The basic rule of thumb states that if you have a clear, sunny day and your aperture is at f/16, whatever ISO you are using, your shutter speed will be the reciprocal value of that ISO value (ISO X = 1/X seconds shutter speed). So for example, if your ISO is 200 at f/16, then your shutter speed will be 1/200 seconds. If your ISO is 100, then your shutter speed will be 1/100 seconds. Simple, right? Ok, so now that we have f/16 out of the way, how can we use the Sunny 16 Rule to calculate shutter speed values with other aperture values? If you recall from our tutorial on exposure, you may remember that aperture, shutter speed, and ISO make up the three-way balancing act in determining exposure. So the way this works is that if you increase/decrease one variable, you have to increase/decrease at one of the other variables in order to keep the exposure the same. If one factor goes up by one stop, another factor should go down by one stop, and vice versa. So let’s say that your aperture is f/16, your ISO is 200 and your shutter speed is 1/200. If you want to open up your aperture by a stop by going from f/16 to f/11, then you have to go down a stop in either your shutter speed to 1/400 sec or ISO to ISO100. So here’s a quick run-down of what shutter speed that you will need if you open up your aperture one stop at a time. The ISO is kept at ISO200. Change in ApertureStop DifferenceChange in ShutterStop Differencef/1601/200 @ISO2000f/11+1 stop1/400 @ ISO200-1 stopf/8+2 stops1/800 @ISO200-2 stopsf/5.6+3 stops1/1600 @ ISO200-3 stopsf/4+4 stops1/3200 @ISO200-4 stopsf/2.8+5 stops1/6400 @ISO200-5 stops For other weather conditions besides clean and sunny, you can also compensate with the aperture in order to keep ISO and shutter speed at the same value. Here is a table from James Martin’s Digital Photography Outdoors: A Field Guide for Travel and Adventure Photographers. Weather ConditionShadow DetailApertureSnowy/SandyDark with sharp edgesf/22Clear & SunnyDistinctf/16Slightly overcastSoft around edgesf/11OvercastBarelyf/8Heavy overcastNo shadowsf/5.6Open shade/SunsetNo shadowsf/4 First of all, the Sunny 16 Rule is a good way to check if your camera is spot on with exposure or does it consistently under or over expose. Some cameras have a tendency to slightly under expose, and this is a good way to test that camera. Additionally, unlike the camera metering system, the Sunny 16 Rule is based on incident light instead of reflected light, which means that it’s based on the brightness of the light only, and not how the light that is being reflected off the subject and into the camera. I wrote an extensive test on the advantages of incident light metering versus reflected metering before, but to sum it up, incident light metering cannot be fooled by very light or very dark clothing and very light or dark background. So as a quick example, a bride’s white wedding dress can throw off a camera’s reflected light metering the more and more of that dress fills the frame. So the Sunny 16 Rule is can help you double check your camera’s metering to make sure it’s not getting thrown off. That’s all there is to it for the Sunny 16 Rule! It’s another good tool to have in your photography knowledge bag. If you want a nice cheat-sheet sticker to have with you, you can get the Sunny 16 sticker by CafePress For a video explanation of Sunny 16, see the video below. One of the more common exposure tips in photography is called the sunny 16 rule. Although it dates back to the early days of photography, and some would argue that it is obsolete at this point, most photographers still hear about this rule while learning about exposure. So, what is the sunny 16 rule, and does it still matter for taking pictures today?Introducing the Sunny 16 RuleThe sunny 16 rule is a simple way to determine a good exposure for a photograph. On a clear, sunny day, when you are using an aperture of f/16, this rule recommends a shutter speed equal to the reciprocal of your ISO (1/ISO value).At ISO 100, for example, use a shutter speed of 1/100th of a second. At ISO 200, use a shutter speed of 1/200 second. That’s all there is to it.The definition of the sunny 16 rule: f/16.0, ISO 100, 1/100 second.Keep in mind that all the various exposure settings recommended by the sunny 16 rule are not equally worthwhile, even on a sunny day, and the rule itself doesn’t claim they are. For example, you probably will not want to shoot at settings like f/16, ISO 3200, and 1/3200 second for many photos.Instead, the sunny 16 rule is all about providing a quick set of exposure settings which will result in a photo of the proper brightness. You still need to pick from those settings to determine which one is ideal for the scene you’re capturing.Also, it is easy to expand the sunny 16 rule further by assuming a different aperture value or a darker scene. For example, if the settings f/16, 1/100 second, and ISO 100 provide a bright enough photo on a sunny day, the same will be true for f/11, 1/200 second, and ISO 100 in the same conditions. That still counts as a “sunny 16 exposure,” even though you’re at f/11. These numbers are meant to be shifted.Basking in the sunny 16 rule. Taken at f/11, ISO 100, 1/200 second.Does the Sunny 16 Rule Work?Although the sunny 16 rule can work as a general guideline, you will find situations – even on clear, sunny days – in which it leads to underexposure or overexposure. The colors and reflectiveness of your subject make a big difference here, and so does the direction you face (into the sun, or away from it). If your standards are too high, the sunny 16 rule plainly does not work.However, it never was meant to be a precise way to find your optimal exposure – simply a guideline to help you down the right path. By following the sunny 16 rule, you immediately know a range of camera settings that will be roughly correct, and you have the ability to bracket or consult your meter to refine things more precisely.f/11, ISO 100, 1/800 second – meaning that this scene was 4x as bright as a “sunny 16” scene, simply due to the reflectiveness of the snow. (To be fair, advanced sunny 16 discussions do take situations like this into account.)What About Your Camera’s Meter?Most photographers don’t use the sunny 16 rule for their daily work. Instead, they use the camera’s own meter to find a good exposure, adjusting exposure compensation as needed. That’s probably what you should do as well.The sunny 16 rule isn’t better than your meter in most cases. Originally, it was used as a way to calculate exposure if you didn’t have a meter with you, or to serve as a sanity check on your meter’s reading (since you couldn’t just review a photo you had taken with film).Today, essentially every digital camera on the market has a built-in meter, and you can review your photos immediately to judge exposure (as well as consult tools like your histogram for greater precision). So, the sunny 16 rule is a bit of a relic. It is rarely used in the field any longer.However, that does not mean this rule is useless. Personally, I believe that you can improve your photography skills by forming a deep, intuitive understanding whenever you learn about an important topic like exposure. In this case, the sunny 16 rule helps you learn an instinctive range of reasonable settings for a scene even before you decide to take a photo.In other words, the sunny 16 rule is a good starting point to formulate your own “mental meter” if you have not begun to do so already. It is also a useful way to teach beginning photographers about the concept of exposure – how your camera settings relate to one another, and to the scene you are photographing.NIKON D800E + 70-200mm f/4 @ 155mm, ISO 100, 1/100, f/16.0Sunny 16 Rule ChartBelow, you will find a chart with the sunny 16 rule’s recommended exposure settings. This chart also includes the equivalent exposures for darker scenes:Note that these values are not precise, and, again, the optimal exposure depends upon a number of additional factors. It is important to check your camera’s meter reading if you want a more specific suggestion for exposure. Also, the chart above does not cover all the potential settings which will work for a given scene. (You certainly can take high-quality photos at sunset at f/11, for example.)ConclusionThe sunny 16 rule is not the optimal way to capture a good exposure. It is not even a technique, most likely, that you will need to think about at all in the field. Useful tools like your camera’s built-in meter, histogram, and blinkies have rendered basic tricks like this generally obsolete in today’s world.However, for photographers who are trying to expand their personal skillset and intuitive understanding of photography, the sunny 16 rule still has value. There is something to be said for refining tools like your “mental meter” and visualization skills if you want to become a better photographer. It also helps beginners understand the relationship between a scene’s appearance and the camera settings needed to capture it successfully.So, there are at least a couple good reasons why the sunny 16 rule has lasted until today (aside from old habits dying hard). Hopefully, this article helped you determine whether or not it will be useful for your photography as well. The Sunny 16 Rule is becoming a relic of the past; a tried and true method that has become less and less popular as automatic functions of cameras have become more prominent. We still think it’s valuable to know how to use the Sunny 16 Rule, and if you’re interested in film photography, it can be especially beneficial. Consider this your Sunny 16 Rule Cheat Sheet – everything you need to know in one place. What is the Sunny 16 Rule? The Sunny 16 Rule is, in the simplest terms, a quick and easy way to nail the exposure on a photo, without the use of a light meter. If you’re interested in analog photography, many vintage film cameras don’t have a built in light meter, or, they might not function properly. While carrying a separate, expensive, dedicated light meter will produce the most accurate results, using the simple Sunny 16 Rule is oftentimes perfectly adequate. Don’t worry, it’s really not as complicated as it sounds. Let’s look at how to use the rule. How to Use the Sunny 16 Rule It may sound confusing, but with a little bit more info and practice (and our cheat sheet), you’ll be able to use the Sunny 16 Rule in no time. Here are the steps to getting a good exposure without a light meter: 1. Assess the Weather Conditions Ok – you’re ready to take a photo. Take a look around. What’s the weather like in your scene? To use the Sunny 16 Rule, choose whichever one of the following five weather conditions is most accurate: Sunny Slightly Overcast Overcast Extremely Overcast Sunset There’s no hard and fast definitions about what constitutes “slightly overcast” vs “overcast”, but you get the idea. 2. Set the Aperture (f/ Stop) Each of those five weather conditions has a corresponding aperture. Set your camera accordingly: Sunny = f/16 Slightly Overcast = f/11 Overcast = f/8 Extremely Overcast = f/5.6 Sunset = f/4 Honestly the most difficult part is remembering which f/ stop goes with which weather condition. That’s why we’ve got a Sunny 16 Chart to make it easier. Check it out here. 3. Set the Shutter Speed You’re almost done! Seriously! With the aperture set, next you’ll select the correct shutter speed. All you need to do is check what speed of film you’re shooting (or ISO if you’re using digital) and choose the inverse of that number. So, if you’re shooting a 400 speed film, let’s say Portra 400, your shutter speed would be 1/400*. If you’re shooting a 100 speed film, like Ektar 100, your shutter speed would be 1/100*. And so on, and so forth. See, we told you it wasn’t too difficult! *We know that 1/400 and 1/100 are not real shutter speeds, we’ll cover this later. Adjustments to the Sunny 16 Rule Once you understand the basics, you can start fine tuning the formula to make any adjustments you may need. While the Sunny 16 Rule may be quick and easy, that doesn’t mean you want to shoot every photo at f/16… The great thing about this method is that aperture and shutter speed both increase and decrease in incremental steps. So, every time you increase the shutter speed one stop (from 1/250 to 1/500, for example), the camera is letting in half as much light as before. Same goes for decreasing the shutter speed – each stop that you go down doubles the amount of light. Changing the aperture from f/8 to f/11 also equates to half the amount of light. Moving from f/2.8 to f/2? You guessed it, that equals twice as much light. Because of the way that both shutter speed and aperture control light, there’s no problem using the Sunny 16 Rule if you want to change one of the settings that the original rule calculated for you. Changing the Aperture It seems more likely that you’re going to want to change the aperture of your shot over the shutter speed. To change the aperture while still following the Sunny 16 Rule, take note of how many stops you are changing the aperture and then adjust the shutter speed the same amount of stops in the opposite direction. Let’s look at an example: Let’s say you’re shooting a 100 speed film on a sunny day, with the aperture set to f/16 and the shutter speed at 1/125 (most old film cameras don’t have a 1/100 shutter, so this is the closest shutter speed you can get. More on that here). You want to change the aperture to f/5.6 for a more shallow depth of field, so you need to increase the shutter speed to 1/1000. How’d we get that? From f/16 to f/5.6 is three stops (f/16 → f/11 → f/8 → f/5.6). Add three stops to 1/125, your original shutter speed (1/125 → 1/250 → 1/500 → 1/1000). Changing the Shutter Speed The method is more or less the same to change the shutter speed. Here’s an example: Let’s say the original settings are the same as above: 100 speed film on a sunny day, aperture of f/16, shutter speed of 1/125. Maybe you’re shooting something that’s moving quickly and you want to make sure to avoid any motion blur in your photos. If you wanted to change the shutter speed to 1/500, you’d need to adjust your aperture to f/8. Let’s break it down: From a shutter speed of 1/125 to 1/500, that’s two stops (1/125 → 1/250 → 1/500). Adjust your original aperture of f/16 two stops to f/8 (f/16 → f/11 → f/8). When to Use the Sunny 16 Rule Many professional photographers may not even know how to use the Sunny 16 Rule. That’s because cameras for the last five decades have come standard with built in light meters. We still think it’s valuable information to learn, and particularly handy in some situations. When Your Camera Doesn’t Have a Light Meter Whether you’re shooting a vintage Leica without a built in meter, or your camera’s meter has stopped working, the Sunny 16 may come in handy for you. Many people prefer a film camera that can operate without batteries, which for many models, exist only to power the light meter. A dedicated light meter will definitely get you the best results, but they are expensive and not something you’re likely to carry with you all the time. To Test the Functionality of Your Light Meter What about when your camera’s starting to seem like it’s on the fritz? If you’re shooting film, you probably don’t want to wait until 36 frames plus the time to develop to see if your meter is working properly. Instead, use the Sunny 16 Rule to set your camera and then compare that to what the built in meter reads. If they come back relatively close, the meter’s probably fine, if they come back drastically different, your camera’s light meter might be broken. Sunny 16 Chart (Cheat Sheet) While following the Sunny 16 Rule is easy, it’s not quite as easy to remember which aperture corresponds with each weather condition. To make sure you’re always prepared, you can download our cheat sheet below and print it out and keep it in your camera bag. (Or, you know, just take a screenshot, because it’s 2023). Download the Sunny 16 Chart Negatives to Using the Sunny 16 Rule Just like anything else, it’s important to look at the downsides to the Sunny 16 Rule and know when to use a different method. Settings Don’t Always Exist This one is particularly important to film photographers. As seen in our example above, sometimes the Sunny 16 Rule equates to settings that don’t exist on your camera. If you’re shooting 100 speed film, there’s no 1/100 shutter speed. There’s no 1/200, 1/400 or 1/800, either. Luckily, most film stocks have a decent exposure latitude, meaning that you can usually over or under expose a shot by a few stops while still getting a decent image. Following our example above, if we were shooting 100 speed film, we’d use the 1/125 shutter speed, because it’s the closest to our desired setting of 1/100. Not the Most Accurate Method We’ve already mentioned a few times that the Sunny 16 Rule is definitely not the most accurate way to measure your exposure. For a lot of photos, it will be perfectly adequate, but certain situations will call for a precise metering and a perfect exposure. Even compared to most cameras’ built in meters, a dedicated light meter is by far the most accurate method. If you regularly shoot a film camera without a meter, it’s probably worth your while to invest in a dedicated light meter. The Sekonic Flashmate is a tried and true option trusted by many photographers. Check out the Flashmate here. If you've ever struggled with camera settings on a bright sunny day, the Sunny 16 Rule might be your new favorite trick. This timeless exposure method helps you take well-lit photos outdoors without relying on your camera’s meter—perfect for beginners learning manual mode or anyone using film. In this guide, we’ll break down how it works, when to use it, and how to adjust for different lighting situations.The Sunny 16 Rule is a classic exposure guideline that helps photographers manually set exposure in bright, sunny conditions—without needing a light meter. It’s especially handy for beginners learning manual mode or anyone using older film cameras.At its core, the rule is simple:On a sunny day, set your aperture to f/16 and your shutter speed to the reciprocal of your ISO.Example:If your ISO is 100, use a shutter speed of 1/100 second (or the nearest setting, like 1/125).With ISO 200, go for 1/200 second, and so on.Even with today’s advanced metering systems, the Sunny 16 Rule remains a valuable tool. It’s a great manual backup and a way to check your camera’s exposure accuracy.Pro tip: If your DSLR or mirrorless camera’s exposure doesn’t quite match the rule, use exposure compensation to adjust.No light meter needed: Perfect for film photography or manual shooting.Quicker outdoor shooting: Set your exposure without checking the meter constantly.Better light awareness: Great for learning how light affects exposure.Saves battery: Ideal for analog cameras or low-power situations.Set your ISO based on lighting and desired image quality. ISO 100 is perfect for sunny days.Choose an aperture of f/16.Match your shutter speed to your ISO (or as close as possible).Take a test shot and adjust if necessary.Your shutter speed should still follow the ISO-based guideline.Ignoring lighting changes: Adjust your aperture when moving between sun and shade.Mixing up ISO and shutter speed: Always base your shutter speed on your ISO.Using it indoors or at night: This rule is designed for bright, daylight conditions only.What is the Sunny 16 Rule in photography?The Sunny 16 Rule is a handy guideline for estimating proper daylight exposure without a light meter. It suggests that on a sunny day, you set your aperture to f/16 and your shutter speed to the inverse of your ISO.Does the Sunny 16 Rule work with digital cameras?When should I use the Sunny 16 Rule?What if it’s not sunny—can I still use the Sunny 16 Rule?Do I have to shoot in manual mode to use the Sunny 16 Rule?How accurate is the Sunny 16 Rule today? The Sunny 16 Rule is a timeless technique that’s still useful today. Whether you’re shooting film, practicing manual exposure, or just want a reliable fallback, it’s a simple way to keep control over your camera settings in bright light. Have you heard of the Sunny 16 rule and wondered what it’s about? Have you ever wondered how people measure exposure using cameras without light meters? If you answered yes to either question or want to learn how to ‘guess’ the exposure just by looking at a scene – this is the article for you. I’ll explain the Sunny 16 rule and how to use it. I’ll also show you how to use the reciprocity law to change both shutter speed and aperture to gain creative control. (This is when you want a shallow depth of field, capture motion blur, etc.) Lastly, I’ll answer popular questions like ‘Is the Sunny 16 Rule still useful in the digital age?’ If I’m piquing your interest, keep on reading! The Sunny 16 rule is a metering system that calculates the correct exposure without a light meter. This might sound weird to you because you usually use the camera’s light meter, right? All modern cameras have an in-camera light meter – except for some Lomo or some unique models. However, this wasn’t always the case. At most, the cameras aimed at amateur users had an exposure guide in the back. This showed how to adjust the camera settings based on the light conditions. This is pretty much what the Sunny 16 rule is about. You adjust the exposure triangle based on the weather and lighting conditions. This means that it uses incident light – just like an external light meter. So, it’s more accurate because most camera light meters use reflective light. Therefore, the camera’s light meter can be misled by difficult subjects. This is because the light reflected from dark subjects might cause the camera to overexpose the picture. On the other hand, very bright subjects may confuse the in-camera light meter and cause it to underexpose it. In digital photography, even if the camera’s meter over or underexposes the photo, you can see it immediately. So you can make the necessary adjustments to achieve the correct exposure. Film photographers don’t have this advantage. You won’t be able to see your pictures using a film camera until you develop the film. Therefore, you need to rely on light meters. Ok, but what happens if you don’t have a light meter? Well, that’s when the Sunny 16 Rule comes into play. The rule says the shutter speed should be reciprocal to whatever ISO you use. Then, you set the aperture to f/16 for a sunny day. If the weather is not sunny, you should adjust the aperture, leaving the exposure triangle’s other factors always at the same value. Of course, this means you must use the camera in manual mode, and it’s mostly useful for outdoor photography. Credit: Asad Photo Maldives You usually set the ISO with a digital camera after deciding the aperture and shutter speed. You start with the shutter speed if you’re concerned about motion or with the aperture if you prioritize the depth of field. To use the Sunny 16 rule, you need to start with the ISO value. This is because, in film photography, you can’t change the ISO on every picture. You could only choose the film speed, which would be the same for the entire roll. However, back to using the Sunny 16 rule. You need to use the camera in manual mode. Now, you start by setting the ISO. If it’s a film camera, you choose the ISO with the film’s sensitivity. You can freely decide which ISO to use if it’s a digital camera. Then, set the shutter speed to the number that’s closest to the ISO value. For example, the most common film is ISO 400. Then, the closest shutter speed would be 1/500. If you’re shooting with an ISO of 100, then set the shutter speed to 1/160, and so on. Since the exposure triangle uses three factors and you already have ISO and shutter speed, then you need to set the aperture. The Sunny 16 rule says that when you’re shooting on a sunny day, and your subject receives direct sunlight, the aperture should be at f/16. As you know, each one of the camera settings has a different impact on your photo. The shutter speed can either freeze a moving subject or capture motion blur. The aperture controls how much of your image is in focus. This is known as the depth of field. So, what happens if you want to change the depth of field or the shutter speed? Does the Sunny 16 rule work? Yes, you can still use the Sunny 16 rule and change the aperture or the shutter speed. You simply have to apply the reciprocity law. Reciprocity is the basic rule that guides the exposure triangle. Each stop either doubles the light or allows half the amount of light. Therefore, moving one of the settings in one direction can be compensated by moving the other in the opposite direction. So, if I set the shutter speed two stops slower, I need to narrow the aperture by two stops and get a good exposure. Let me give you a practical example of applying the Sunny 16 rule. Let’s say you want to make a portrait shot with a blurred background on a sunny day. If you have an ISO of 400, and a shutter speed of 1/500, the original rule calculated an aperture of f/16 for correct exposure. However, that aperture won’t blur the background. So, you need to use a wider aperture to achieve a shallower depth of field. The exact aperture value depends on the focal length and the distance. On average, an f/4 should result in a shallow enough depth of field. You’ll have too much light once you change the aperture from f/16 to f/4. To achieve the proper exposure, you must compensate with other exposure settings so that less light comes into the camera. There are four stops in between those two apertures. So, by the law of reciprocity, you can get the perfect exposure by making the shutter speed four stops faster. Therefore, 400 ISO, 1/8000, and f/4 are the equivalent exposure of 400 ISO, 1/500 shutter speed, and f/16 aperture. You can also adjust the ISO setting if you prefer. For example, you can use ISO 100, 1/2000, and f/4 to get the proper exposure. Credit: Victoria Regen As the name says, the Sunny 16 rule is based on shooting on a sunny day. Unfortunately, we don’t always get sunny days. So, what happens when the weather conditions change? Can you still use the Sunny 16 rule? The answer is yes. You can use the Sunny 16 rule as a starting point – then, you have to adapt it to the weather and lighting conditions. As you would do on a bright sunny day, you must start by setting the ISO. Then, set the correct shutter speed in relation to the ISO you’re using. So far, nothing has changed – that’s because you need to make adjustments in the aperture to achieve correct exposure. Since it’s not so sunny, there’s less available light. This means that you need to use a wider aperture to let in more light than you would on sunny days. Here’s a table you can use as a guideline to achieve good exposure. Cloudy day, not yet overcast – f/11 Overcast – f/8 Dense overcast – f/5.6 Sunset or standing in the shade outdoors – f/4 As you can see, things can get tricky because the different light conditions aren’t so clear-cut. When does it pass from cloudy to overcast? When does the overcast become too dense? So, the Sunny 16 rule is still a good parameter, but it may be less accurate. Some people prefer to use shadows to understand how to apply the rule. Hard shadows correspond to Sunny 16, while no shadows mean f/5.6, otherwise known as dense overcast. This means that f/8 and f/5.6 correspond to lighter, less-defined shadows. There is one exception that you should know. So far, all the adjustments were made to open the aperture and let in more light. When you’re shooting a snowy landscape, you need to close the aperture by one stop. This is because the light is very bright. So, even if it’s not sunny, it will reflect whatever available light. So, this exception to the Sunny 16 rule is known as the Snowy 22 rule. Yes, you’ve guessed it, you need to set the aperture to f/22. This way, it will enter half as much light as it would with an f/16. This rule also applies to sand. One last thing to consider is that you should add one stop whenever your subject is backlit. Credit: MabelAmber The image above was taken with a Nikon D750 and a 100mm lens. The exposure was ISO 800, 1/2000 shutter speed, and f/11 aperture. As you can see, it followed the Sunny 16 rule and used the reciprocity law to adjust the settings. Let’s see how. According to the Sunny 16 rule, the closest shutter speed should be 1/1000 sec. Given that it’s a sunny day, the aperture would be f/16. In this case, the photographer chose a faster shutter speed – probably to freeze the movement of the bicycles. So, the shutter speed is faster by one stop – 1/2000 sec. This means that there’s half the light coming in. The reciprocity law indicates that we can compensate for this loss by adjusting any of the other two factors from the exposure triangle. In this case, the author decided to use the aperture. Therefore, the aperture is one stop wider – f/11. In conclusion, the Sunny 16 rule indicated an exposure of ISO 800, 1/1000 shutter speed, and f/16 aperture. By the reciprocity law, the photo was made with ISO 800, 1/2000 shutter speed, and f/11 aperture. Credit: Pexels Let’s see another example. This image was taken with a Canon EOS 5D MarkII. The exposure was ISO 100, 1/2000, and aperture f/4. There are a few clouds on the horizon. However, the sand and water are very reflective – so they can compensate. Overall, we can all agree it’s still a bright sunny day. However, it does recall a judgment call from the photographer – it’s not so straightforward anymore. You must also apply the reciprocity law to realize that this photo follows the Sunny 16. Following the rule to the letter, the exposure should be ISO 100, 1/125 sec, and f/16. The author chose not to use this but found more appropriate settings for the situation. This is because you need a fast shutter speed to freeze the waves. There are four stops between 1/125 and 1/2000. By reciprocity, the aperture needed to be four stops wider. That’s why f/16 turns into f/4. Basically, ISO 100, 1/125 sec, and f/16 are equivalent to ISO 100, 1/2000, and f/4. Credit: Kareni Before, we discussed whether you can use the Sunny 16 rule if it’s not sunny. So, let me give you an example to show you what we learned. According to the table, you can find in the “What if it’s not sunny” section, you need to set the aperture to f/4 to shoot a sunrise or a sunset. This photo’s exposure settings are ISO 200, 1/125, and f/5.6. So, it follows the rule accurately with a one-stop reciprocity adjustment. The adequate shutter speed for ISO 200, according to the Sunny 16 rule, is 1/250 because it’s the closest number to 200. The author decided to use 1/125, which is one stop slower. To compensate, the aperture needs to be one-stop smaller. So, instead of using f/4, the author used f/5.6. What is the Sunny 16 Rule for ISO 160? Most cameras allow you to use half a stop or even a third. So, you might see 1/160 or 1/180 and think that’s the closest value to ISO 160. However, the Sunny 16 rule considers full stops. So, the closest shutter speed to 160 would be 1/250. What is the Sunny 16 Rule for ISO 200? Following the Sunny 16 rule, the proper exposure for a sunny day with ISO 200 is 1/250 and f/16. Don’t be misled if you see 1/200 in your camera – that’s a third of a stop. Using this, you must compensate with a third of a stop in the aperture value. What is the Sunny 16 Rule for ISO 400? The Sunny 16 rule for ISO 400 is 1/500, f/16. If you use 1/400, then you would need an aperture of f/18. What is the Sunny 16 Rule for night? The Sunny 16 rule isn’t helpful if you’re shooting at night. In film photography, where you can’t see the pictures immediately, it’s better to use a professional light meter or a light meter app. I should note that there is something called the Loony 11 rule. However, this is to help astrophotographers to shoot the moon’s surface. It’s not used to calculate the exposure of subjects hit by moonlight. Gisling, CC BY-SA 4.0, via Wikimedia Commons Most film cameras used to have an exposure guide in the back with some version of how to use the exposure settings. They were primarily based on how to use the Sunny 16 rule. Following that tradition, here’s a Sunny 16 Rule cheat sheet that sums up everything we’ve said so far. ISO SAND/SNOW SUNNY CLOUDY OVERCAST DENSE OVERCAST SUNSET/SHADE 100 f/22 – 1/125 f/16 – 1/125 f/11 – 1/125 f/8 – 1/125 f/5.6 – 1/125 f/4 – 1/125 200 f/22 – 1/250 f/16 – 1/250 f/11 – 1/250 f/8 – 1/250 f/5.6 – 1/250 f/4 – 1/250 400 f/22 – 1/500 f/16 – 1/500 f/11 – 1/500 f/8 – 1/500 f/5.6 – 1/500 f/4 – 1/500 800 f/22 – 1/1000 f/16 – 1/1000 f/11 – 1/1000 f/8 – 1/1000 f/5.6 – 1/1000 f/4 – 1/1000 I have a meter, do I need the Sunny 16 rule? You don’t need the Sunny 16 rule if you have a light meter. It’s still helpful to use the rule and compare it to the results given by the light meter. This way, you’ll learn how to evaluate the light in case you need it sometime when you don’t have the meter with you. What do I listen to: the meter or the Sunny 16 rule? The camera’s light meter reads the reflected light, and the Sunny 16 rule accounts for incident light, making it more accurate. However, the rule is not as precise when it’s not sunny. So, if you have an external light meter, go with that one. If not, listen to the Sunny 16 rule when it’s sunny and to the camera’s built-in light meter if it’s not. However, as you gain more practice, you’ll be able to rely more and more on your expertise and apply the Sunny 16 rule very accurately. Is the Sunny 16 Rule accurate? Yes, the Sunny 16 rule is accurate when shooting on a sunny day. The problem is that even a couple of clouds can alter the amount of light, even if it’s not perceptible by the naked eye. This is even more problematic if there are more clouds, shades, overcast, etc. Then, it’s more difficult to accurately determine whether you need to use an f/11 or f/8, and so on. Is the Sunny 16 rule just for film cameras? Not necessarily. The Sunny 16 rule dates back to the film era because it wasn’t as common that the camera would have a built-in meter. Indeed, you wouldn’t have a light meter if you weren’t a professional photographer. So, the Sunny 16 rule made a lot of sense when shooting film. Now, all digital cameras have a light meter, so you don’t need to guess the reading. However, this doesn’t mean that it wouldn’t be accurate if you apply the Sunny 16 rule.