

# Stockton Camera Club

**The Shutter Tripper**

**June 2022**

**May 1st Place Image**



**1st Place**  
**Humming Bird on Dahlia**  
Christine Blue

## May 2nd & 3rd Place Images



**2nd Place**  
**Ice Cubes**  
**Heide Stover**



**3rd Place**  
**Almost on Fire**  
**Em McLaren**



**Cat's Whiskers Plant  
(*Orthosiphon aristatus*) and  
Law-why-ee Fern (*Microsorium  
scolopendria*)**

**Trey Steinhart**



**Yosemite Falls  
In the Spring**

**Joanne Sogsti**



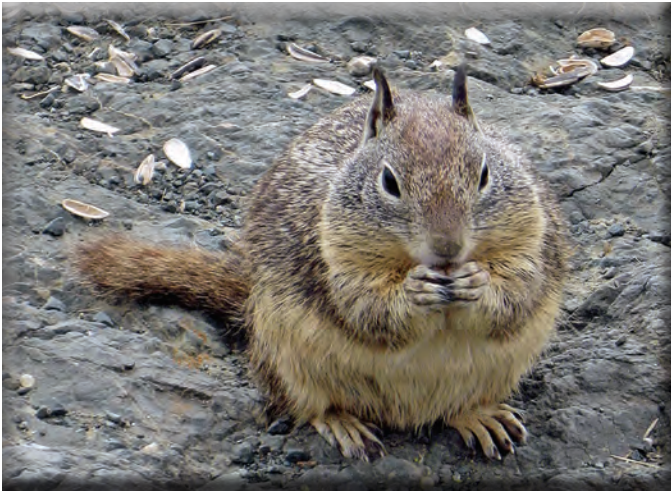
**Clouded Sulfur Butterflies**

**Christine Blue**



**Ice Crystals  
On a Shallow Stream**

**Dean Taylor**



**Sunflower Seeds**  
Joan Erreca



**White Tailed Kite with Mouse**  
Joanne Sogsti



**Hoo-no-puu Valley, Kaua**  
Trey Steinhart



**Reaching for the Good Part**  
Ron Wetherell



**The Latch**  
Dean Taylor



**Frozen Pansies**  
Joanne Sogsti



**Leaf Clutter**  
Dean Taylor



**Wind Swept Trees**  
Wayne Carlson



**Hummer in High Key**  
Christine Blue

## SCC Officers 2022

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## President's Message

May 2022

By Heide Stover

We had a good meeting in May. There were good ice images and good open images. I think our club is very talented. Our judge did a wonderful job commenting on the images. Wayne did a quick demo on blending and will go into more detail before the June meeting. I am checking on the status of the bowling alley and should know more about that soon.

See you all at the next meeting.

Till then, happy shooting!

Heide

## A Big Thank You to Our Sponsors!



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<b>2022 Calendar of Events</b>		
<b>Every 3rd Thursday (Except April &amp; Aug) 6:30 PM</b>	<b>Location</b>	<b>Membership Meeting Contact Heide Stover <a href="mailto:h1stover@aol.com">h1stover@aol.com</a></b>
<b>Saturday June 4</b>	<b>San Joaquin County Fairgrounds</b>	<b>Photographing Carnival Lights 6:30 pm Contact Dean Taylor - <a href="mailto:ditaylor49@aol.com">ditaylor49@aol.com</a></b>
<b>Thursday June 16</b>	<b>Zoom Meeting Stockton</b>	<b>June General Meeting Special Subject - Open No Special Subject</b>
<b>Thursday July 21</b>	<b>Zoom Meeting Stockton</b>	<b>July General Meeting Special Subject - Kids at Play</b>
<b>August</b>	<b>TBA</b>	<b>Annual Pot Luck</b>
<b>Thursday September 15</b>	<b>Zoom Meeting Stockton</b>	<b>September General Meeting Special Subject - Things That Float</b>
<b>Thursday October 20</b>	<b>Zoom Meeting Stockton</b>	<b>October General Meeting Special Subject - Monochrome</b>
<b>Thursday November 17</b>	<b>Zoom Meeting Stockton</b>	<b>November General Meeting Special Subject - Open Prints Only If Not Meeting On Zoom</b>
<b>Thursday December 15</b>	<b>Zoom Meeting Stockton</b>	<b>December General Meeting Special Subject - Optical Illusions</b>
<b>2023 Calendar of Events</b>		
<b>January</b>	<b>TBA</b>	<b>Annual Banquet</b>
<b>Thursday February 16</b>	<b>Zoom Meeting Stockton</b>	<b>February General Meeting Special Subject - Bokeh</b>
<b>Thursday March 16</b>	<b>Zoom Meeting Stockton</b>	<b>March General Meeting Special Subject -Circles</b>
<b>Thursday May 18</b>	<b>Zoom Meeting Stockton</b>	<b>May General Meeting Special Subject - Abstract</b>
<b>Thursday June 15</b>	<b>Zoom Meeting Stockton</b>	<b>June General Meeting Special Subject - Prints Only (No Special Subject)</b>

# May Meeting's Notes

May 2022

Heide opened the meeting and welcomed Ren, a new member to the club. Ren learned about the club thru Ana Vera at Art Expressions.

1. Heide said all who entered their images at the C.A.B. need to pick them upon June 3 between 9 AM thru 11 AM.

2. Heide will be having a reception for her show at Hutchsins Square in Lodi on June 3 from 6 - 8 Pm. Please contact her for directions. Congratulations Heide.

3. For all who want to attend the SJVCCC, please meet at Heide's house on June 12 if you need a ride. Her number is: 1-201-986-6120.

4. Wayne gave a short presentation on the Blending Mode in Photoshop at 6 PM, just before the meeting. He said he will be on vacation and won't get back until Monday or Tues the week of the next meeting. So, when you send in images for June, you may not get a notification from him that he got them until late.

5. Dean plans to go to the San Joaquin County Fair on June 4th to take photos of Carnival Lights. Please contact him if you would like to attend with him. ([dtaylor49@aol.com](mailto:dtaylor49@aol.com))

Dean introduced Tim Durham for this month's judge. Tim is an active member of the Merced Camera Club and the SJVCCC. He started using his camera during his college days and in the 90's joined the Merced Club. He took an image analysis course thru PSA and started judging in 2019. He hopes to retire from his job at a cheese manufacturing plant and devote his time to photography.

There were 33 images submitted in Open and 10 images submitted in Special Subjects.

The winning images for May are:

1st Place: "Humming Bird on Dahlia" by Christine Blue

2nd Place: "Ice Cubes" by Heide Stover

3rd Place: "Almost on Fire" by Em McLaren

Congratulations to all the winners!

The Special Subject for June is: OPEN (June was supposed to be a print month).

Please let me know if there are any corrections or additions to the notes.

Thanks, em



**Stockton Camera Club**  
**May 2022 Competition Standings**  
**Congratulations to the winners!!!**

**Because the bowling ally conference room was not available for SCC competition  
the meeting was held via Zoom.**

**May, 2022**

**1st Place - Humming Bird on Dahlia - Christine Blue**

**2nd Place - Ice Cubes - Heide Stover**

**3rd Place - Almost on Fire - Em McLaren**

**Please check out the website <http://www.stockton-cameraclub.com/home.html>”**

<b>Class A Standing</b>	<b>TOTAL</b>	<b>OPEN</b>	<b>SS</b>	<b>FEB</b>	<b>MAR</b>	<b>MAY</b>	<b>JUN</b>	<b>JULY</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
<b>Class AA Standing</b>	<b>TOTAL</b>	<b>OPEN</b>	<b>SS</b>	<b>FEB</b>	<b>MAR</b>	<b>MAY</b>	<b>JUN</b>	<b>JULY</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
Wayne Carlson	113	85	28	38	38	37	0	0	0	0	0	0
Heide Stover	112	85	27	37	38	37	0	0	0	0	0	0
Ron Wetherell	74	55	19	38	0	36	0	0	0	0	0	0
Joan Erreca	58	50	8	32	0	26	0	0	0	0	0	0
Karleen Gansberg	35	27	8	32	0	0	0	0	0	0	0	0
Elizabeth Parrish	35	27	8	0	35	0	0	0	0	0	0	0
Sheldon McCormick	32	24	8	32	0	0	0	0	0	0	0	0
Christine Blue	30	30	0	30	0	30	0	0	0	0	0	0
Ren Wright	9	0	9	0	0	9	0	0	0	0	0	0
Darrell O’Sullivan	0	0	0	0	0	0	0	0	0	0	0	0
Lanny Brown	0	0	0	0	0	0	0	0	0	0	0	0
<b>Class AAA Standing</b>	<b>TOTAL</b>	<b>OPEN</b>	<b>SS</b>	<b>FEB</b>	<b>MAR</b>	<b>MAY</b>	<b>JUN</b>	<b>JULY</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
Joanne Sogsti	116	86	30	38	39	39	0	0	0	0	0	0
Dean Taylor	115	85	30	39	37	39	0	0	0	0	0	0
Doug Ridgway	114	86	28	38	37	39	0	0	0	0	0	0
Em McLaren	114	86	28	39	39	36	0	0	0	0	0	0
Sharon McLemore	111	83	28	38	37	36	0	0	0	0	0	0
Trey Steinhart	109	80	29	36	36	37	0	0	0	0	0	0

## 2022 Competition Policy

### A. GENERAL RULES

1. Only paid-up members may enter club competition.
2. Regular print and digital image competition period: Once each month except January. A competition year is February through December. Current regular meetings are February, March, May, July, September, October and December. The number of meetings may change from time to time at the discretion of the Board of Directors and approval of the general membership as facilities permit. The Annual Awards Dinner will be held in January.
3. A total of four (4) images (all prints, all digital or a combination of both) may be entered each competition month. A total of three (3) images may be entered in the Open Division and a total of one (1) in the Special Subject Division. The number of entries may change from time to time at the discretion of the Board of Directors and the approval of the general membership.
4. Each image will be scored from 6 to 10 points. All prints or digital images receiving 9 or 10 points will be classed as an honor image. The title of each print or digital image entered will be read before being evaluated. The name of the maker will be read for 9-point honor winners. Maker's names will be announced for the 10 point images after the Print & Digital Image-of-the-Month winners are chosen.
5. A print or digital image that does not receive an honor score, may be re-entered one more time in the same division.
6. A print or digital image may be entered in all divisions for which it qualifies; i.e., an honor image in Open may also be entered in the Special Subject Division at another competition. A print or digital image that receives an honor score may not be re-entered in the same division.
7. Any print or digital image that appears to be ineligible for competition or not qualified for a specific division could expect to be challenged. The Competition Vice-President shall decide whether or not the image is acceptable.
8. The exhibitor must have exposed each negative, slide or digital image entered. All images submitted for judging must be the work of the photographer/maker including the taking of the images and any digital enhancements and/or manipulation of the image. This does not apply to the processing of film or printing by a commercial processor.
9. The same image should not be entered both as a print and a projected digital image in the same competition.
10. In the event of absence or barring unforeseen circumstances, a member may submit make-up prints or digital images for one competition night per competition year; and whenever possible must submit all make-up prints or digital images at the meeting immediately following the month a member failed or was unable to submit the prints or digital images. Make-ups in the Special Subject Division must be the same subject as the month missed. Also, in case of absence a member may assign the responsibility of submitting his or her prints and/or digital images for competition to another member.
11. A club member who serves as judge cannot enter his or her own prints or digital images in the same competition. The judge's make-up prints or digital images can then be entered in another competition during that competition year. This is in addition to the once-a-year make-up provision already

allowed.

12. Prints or digital images may be projected/viewed briefly before the judging of each division if the judge indicates he/she would like a preview.

### B. PRINT ENTRY RULES

1. Each print entered must have a completed label attached to the back of the print including; name of maker, title, date entered and Division (Open or Special Subject). The writing or printing on the form must be legible. Labels must be attached on the back of the print in the upper left-hand corner for correct viewing of the print.
2. All prints must be matted or mounted with a total size (including mat board) of no larger than 18" X 24" and no smaller than 8" X 10". Exception: One side of a Panorama Print may be no larger than 36". Prints that are smaller than 5" X 7" will not be accepted. The maker's name must not appear on the viewing surface of the image. Framed prints shall not be entered.
3. Prints accompanied by entry forms should be submitted no later than 15 minutes prior to the start of the regular monthly meeting.
4. Prints receiving a score of 10 points, in each class, will be regrouped and judged for selection for the Print-of-the-Month honors. Print-of-the-Month honors will be given in Class A, AA & AAA.

### C. DIGITAL IMAGE ENTRY RULES

1. Digital images must be submitted in a format and by the deadline specified by the Competition Vice-President. Digital images may be submitted by email, mailed (CD) or delivered (CD) to the Competition Vice-President. Definition of Digital Image: An image taken with a digital camera, a negative, slide or print scanned into the computer and processed digitally.
2. Images must be in a format compatible with the projector. The key thing to keep in mind when formatting photos for submission is that the projector we use in the competition has a (maximum) resolution of 1400 x 1050 pixels. This means that any photo that exceeds this size in either dimension, could end-up being cropped by the projector. In other words: the image width cannot be more than 1400 pixels and the image height cannot be more than 1050 pixels. If your image is horizontal, only change the width to 1400, if your image is vertical, only change the height to 1050. Do not change both. Down-sizing the image from the "native" resolution coming out of your camera also significantly reduces the file size. This helps when emailing the files and takes-up less space on our hard-drives.
3. The maker's name, title of image, date entered and division (Open or Special Subject) must be included as the title of the image. When you have finished re-sizing your image save your image with a new title. For example do a Save as: Smith Sunrise Splendor 05-15 O.jpeg. (O-Open or SS-Special Subject). Specify whether you're Beginner, Advanced or Very Advanced.
4. Digital Images receiving a score of 10 points, in each class, will be regrouped and judged for selection for the Digital Image-of-the-Month honors. Digital Image-of-the-Month honors will be given in Class A, AA & AAA.

## Master Photography Lighting: Secret to Creating Astonishing Images

By *ProGrade Digital*

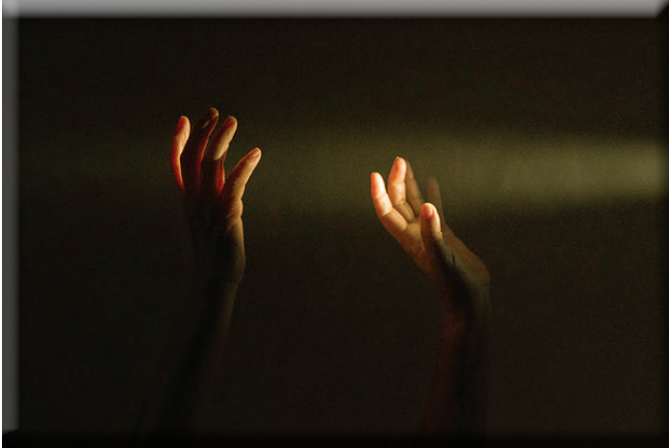


Photo by Luis Dalvan

Lighting is essential in photography. In fact, the very word photography itself means “drawing with light.” Photo, in Greek, means light, and graph, to draw. This couldn’t be more accurate. After all, it’s the light that your camera captures to create an image. So, no light, no image.

However, lighting is about much more than just brightness. It’s also about the clarity, tone, emotion, and atmosphere of the image. In other words, it’s not just about how much light is captured inside a photograph but how exactly this light is captured.

Luckily, it’s not rocket science. There are only three aspects to understand – position, intensity, and temperature.

The moment you master these three aspects, you can pretty much just punch a hole in a soapbox, throw a memory card in it, and start shooting. Because once you get the lighting, you can take

magnificent photographs with even the cheapest cameras.

### 1. Color Temperature.

Light comes in different colors. Color temperature is a way to describe the appearance of the light emitted by a light source. It is measured in degrees of Kelvin on a scale ranging from 1,000 to 10,000.

Light from the sun at sunrise creates a different color than an incandescent light bulb, and an incandescent light bulb creates a different color than a fluorescent one.

Getting the color temperature right is crucial for a correct white balance. That is, of course, when you aim for a correct white balance in the first place. There are myriad reasons you may want to be a bit off. Color temperature is one of the key factors that determine the mood of a photograph. Setting the white balance toward a lower end of the Kelvin spectrum, say 2,000K, creates a warmer, tranquil feeling, similar to shooting at sunset. Meanwhile, pushing it more toward the other end, the blue end, results in a cooler image and creates a sad, melancholic, and somber feeling.

### How to Get the White Balance Right

There are a couple of ways for you to adjust the white balance. First, automatic. Whenever that option is selected, your camera analyzes the color of the ambient light and adjusts the white balance accordingly.

Second, semi-automatic (for lack of a better word). This is where you choose between standard presets in your camera. Shade is usually at 7,500K, tungsten at 3,000K, sunrise at 2,500K, and so on.

However, if you want to be dead accurate, you get yourself a gray card and do it manually. Gray card serves as a reference point and helps you to adjust the exposure and white balance settings in your camera. Simply hold the gray card where your subject is and adjust your camera settings for optimal exposure. That’s all there is to it.

Even though getting the white balance right in the camera is easy, you don’t have to do that. Alternatively, you can take a few shots of the gray card before you photograph your subject. Then, using Photoshop or similar software, give an exact value to that gray color, and the software will correct the colors automatically.

Photoshop makes it super easy and is super accurate. Just find the three little eye-droppers next to the Levels histogram. Select the middle one, click on the gray card, and voila, you have corrected all the colors. Now, simply apply this setting to the pictures of your subject, and you’re done.

Remember to take a new reference image whenever you adjust the settings or change the shooting angle. Also, make sure your gray card is color accurate itself. Buy one from a trusted source or use a calibrated printer if you decide to make it yourself. Last but not least, shoot RAW to have as much information as possible to correct or tweak colors in post.

### Get Creative With the Color of Your Light Source

Besides using white balance for creating an image that is balanced, warm, or cool, you can also adjust the color of your light source. The easiest way to do that is by using flash gels. These thin pieces of colored transparent material can be fitted on your flash to give a specific color to the light. Flash gels are mainly used for toning the flash to match the color of the ambient light. However, it doesn’t mean that you can’t or shouldn’t go creative with them. It’s a lot of fun.

## **2. Position. Position. Position.**

The position of the light source in relation to the subject plays a dramatic role in the look of the photograph. The easiest way to understand it is to place an object in a dark room and light it using only one light. Whenever you start moving that light around, you will immediately see how the position of the light affects the final look of the image, as it determines where the shadows fall.

There are two types of light sources: natural and artificial. There are three ways to light a subject: front lighting, side lighting, and backlighting. And there are three ways to adjust the position of the light: move the light source, move the subject, or move the camera.

Whenever you deal with a natural light source, the sun, moving it is not an option. So, you can only reposition the light by moving the camera or subject or both.

### **Front Light**

If the main light source is in front of the subject, it's called the front light. This type of lighting pushes shadows behind the subject and brings out all the details. Front lighting has several benefits. It's perfect for portraits and creating symmetry, as the light spreads evenly across the photo.

### **Side Light**

If the main light source hits the subject from the side, it's called the sidelight. Unlike the front light, the sidelight starts to hide some details by introducing shadows. This, in return, creates depth and allows you to bring the subject's character to life.

The light does not have to be exactly on the side at a 90-degree angle. Sometimes adjusting it one way or another will result in more beautiful shadows and an interesting image.

### **Back Light**

When the main light source is behind your subject, it's called the backlight. This is by far the trickiest type of lighting and much harder to get right than the front or sidelight. Nevertheless, it's worth playing around with, as it can lead to astonishing images.

Since the shadows are in front of the subject, it is so easy to end up capturing just a silhouette. If it's your goal, great. If not, and you want to see at least some detail on your subject, then get your light modifiers out. Alternatively, you can also use a light reflector and bounce some of that backlight back onto the subject.

## **3. Light Intensity.**

When changing the position of the light determines where the shadows fall, then the intensity of the light determines how dark those shadows are. Hard light, with its high intensity and contrast, is perfect for adding drama to your images. Less intense soft light and its practically non-existing shadows are great for creating a mellower mood.

### **Hard Light**

When the light hits the subject directly, it creates well-defined shadows with minimal blending between the bright white and dark areas. You can create this effect by using a spotlight or any other undiffused light source. Midday sun is a free hard light source.

Distance is also important. The closer the light source, the softer the image. Place your subject close to a softbox, and you get soft light. Now ask your subject to move away from the softbox, and you will see the transition between light and dark areas get harsher and harsher. The same applies to windows.

### **Soft Light**

Soft light comes from a diffused light source. Softboxes are perfect for this, but you can use whatever is available to you to stop the light from hitting your subject directly. For example, a piece of white fabric, a white umbrella, parchment paper, a curtain in front of a window – all work just fine. Plus, you can bounce the flash off the ceiling or any other white surface.

Clouds do the same to the sun what a softbox does to a lightbulb. So, whenever there's an overcast sky, you can take advantage of natural soft light.

### **Practice Your New Skill**

Now that you understand lighting, start practicing by playing around with those three essential factors: position, intensity, and temperature. Creating different moods is all about controlling how light and shadows fall on your subject.

After practicing for a while and grasping the lighting, you may realize that you don't need the best and most expensive cameras for creating amazing art. In fact, once you truly master it, you can easily outperform others with whatever image capturing device you have laying around in your home.

That being said, you will always want to use high-quality memory cards. What's the point of learning this all and putting in the effort when you end up losing your images because of a cheap, unreliable memory card. ProGrade Digital makes sure this never happens. We manufacture ultra-reliable memory cards that are lightning-fast and designed to satisfy the demands of professional photographers and videographers. [Check them out here.](#)

By [ProGrade Digital](#)



Photo by Marc Sendra Martorell

SD cards come in different capacities and have different speeds. Learn how both affect your work flow and the performance of your digital camera.

### A Brief History of Secure Digital (SD) Memory Cards

SD cards were first introduced in 1999. The standard was developed by Toshiba, SanDisk, and Panasonic. These three companies also formed the SD Association that today has about 1,000 members.

**Fun fact:** the iconic “SD” logo was actually designed for the Super Density Disc, which was Toshiba’s not-so-successful attempt to create a new DVD format. That is why the D in the “SD” logo resembles a DVD disc.

In those 20+ years, since the launch of the very first SD card, a lot has changed. The cards look the same, but the inside is almost entirely different.

If the first-generation SD cards had capacities between 32MB and 64MB, then the latest, third-generation SDXC cards have capacities between 64GB and 2TB. The same goes for the data transfer speeds. Back in the day, 12.5MB/s was more than enough. Today that won’t get you anywhere. Current high-megapixel digital cameras demand data transfer speeds around 60-90MB/s.

### SD Card Storage Sizes: What Capacity SD Card is Best for Photography? Cinematography?

The storage capacity is shown on the card in gigabytes (GB). Today’s most popular SD cards, SDHC (Secure Digital High Capacity) and SDXC (Secure Digital Extended Capacity) can hold up to 32GB and 2TB, respectively.

It’s natural to think that the bigger the capacity, the better, but this isn’t necessarily the case. Especially when it comes to photography. Not only can it be more effective and practical to use multiple smaller capacity cards, but you don’t also risk losing all your images when you lose your card or experience data corruption.

The most optimal SD card capacity for the vast majority of photographers who shoot on multiple cards tends to be either 64GB, 128GB, or 256GB.

That said, filmmakers who shoot high-bitrate 4K, 6K, or even 8K videos should consider cards with larger capacity.

### SD Card Read and Write Speed: What Speed SD Card is Best for Photography?

Trying to make sense of the SD cards’ read and write speeds is where things may get somewhat confusing. No wonder. Besides three speed classes, each with a different symbol and multiple subclasses, there is also a thing called speed rating. Not to mention maximum read and write speeds, which are also always marked on the card.

Photographers doing a lot of bursting and videographers shooting high-resolution video (4K and above) should not pay much attention to “Speed Class” nor “Ultra-High-Speed Class” ratings and instead should focus only on the “Video Speed Class” ratings. Latter is marked on the card with a letter V, followed by a number indicating a minimum sustained write speed. So, the SDXC V60 card has a minimum sequential write speed of 60MB/s, and the SDXC V90 card a 90MB/s.

Both SDXC V60 and SDXC V90 cards are the fastest and best SD card options for photographers, as they are fast at storing your images and allow bursting photos without filling the camera’s buffer. Plus, with faster memory cards, you can spend your time shooting and editing and not waiting for your images to copy.

Speed rating, unlike speed classes, is purely a marketing tool and is rarely found on serious SD cards. Markings like “400x” or “600x” merely indicate how much faster read speed a given SD card has from a CD drive. Relatively obsolete comparison today. Put simply, CD-ROM has a data transfer rate of 150 kb/s. So, a 1x equals 0.146MB/s, and since  $600 \times 0.146 = 87.8$ , a 600x is roughly the same as 90MB/s read speed.

### Three Things to Keep in Mind When Buying an SD Card:

1. Make sure your camera is compatible with the card you’re about to buy.
2. Keep a little headroom when estimating the necessary capacity. It’s a bummer to run out of card space when shooting.
3. Check the user manual of your camera to make sure that the SD card has the necessary minimum write speed you need. You don’t want the memory card to limit you in any way.

To help you figure out what capacity and speed SD card you need, [check our comprehensive memory card buying guide](#). Once you’ve figured out what you need, you’ll find the best-performing SD cards, created for demanding photographers, [right here](#).



Photo by Justin Scudney

## Symbols on SD Cards Explained

If you need to buy a new memory card for your digital camera but don't know which one to get because all the symbols on the card confuse you, then this article is for you. After reading this, you'll know exactly what those markings on SD cards mean and why they are there in the first place.

### SD Card Type

The Secure Digital memory card family has three card types: SD, SDHC, and SDXC. The type marking is not a performance rating. Nor does it mean the cards have different form factors. It mainly indicates the range of capacity and file system memory card utilizes. As SD cards evolved, new types were created to allow more storage space.

- SD (Secure Digital) cards use the FAT12 or FAT16 file system and have a capacity between 64MB to 2GB.
- SDHC (Secure Digital High Capacity) cards use the FAT32 file system and have a capacity between 4GB to 32GB.
- SDXC (Secure Digital Extended Capacity) cards use the exFAT file system and have a capacity between 64GB to 2TB.



### Capacity

This one is probably the most straightforward and easy-to-understand marking on the memory card. The card capacity is usually presented in Gigabytes (GB), and it tells you how much storage space a certain memory card has.

### Read Speed

Usually given in Megabytes per second (MB/s), the read speed indicates how fast you can read data off the card. Faster read speed equals shorter data transfer times. In other words, when you import your photos and videos from the card to your computer, a card with a higher read speed will get the job done faster.

### Write Speed

Write speed indicates how fast data can be written on the card. Like read speed, write speed also has significant implications for your project workflow.

### Bus Interface

The bus interface determines the maximum bus speed at which a memory card can transfer data. Almost all SD cards manufactured today have either UHS-I or UHS-II bus interfaces. These are marked on the card with roman numerals I and II. UHS stands for Ultra High Speed.

UHS-I allows data transfer speeds up to 104MB/s and UHS-II up to 312MB/s. Since previous standards max out at 25MB/s, they have all become obsolete.

You can use UHS-II cards in UHS-I-compatible devices, but they won't be as fast in them.

## Speed Class Ratings

A speed class rating defines the minimum sequential write speed of the memory card. This is especially important for shooting videos. A memory card must maintain a certain continuous write speed to avoid frame drops and errors during recording.








The ever-increasing demand for advanced video quality recording drove the need for faster memory cards. To answer that demand, SD Card Association has constantly been updating its Speed Class standards: from Speed Class to UHS (Ultra High Speed) Class to Video Speed Class.

- Speed Class is marked on the card with a number inside the letter C. The number indicates a minimum sequential write speed. For example, an SD card with a C10 rating is guaranteed to sustain a write speed of 10MB/s. There are five ratings in this speed class: C2, C4, C6, C8, and C10.
- UHS Speed Class is marked on the card with a number inside the letter U. In this case, however, the number must be multiplied by 10 to get the minimum sequential write speed. So, a U3 card is guaranteed to sustain a write speed of 30MB/s. There are only two ratings in this class: UHS Speed Class 1 (U1) and UHS Speed Class 3 (U3).
- Video Speed Class is marked on the card with the letter V followed by a number. The number corresponds again to a minimum sequential write speed in MB/s. SD Card Association defines five speed ratings in this class: V6, V10, V30, V60, and V90.

Newer standards were initially meant to replace older ones, but since the camera manufacturers kept using older standards alongside the newer ones in their manuals and compatibility charts, card manufacturers have been pretty much forced to keep stamping them on the cards as well.

If a memory card manufacturer would move entirely to the Video Speed Class standard, while some device manufacturers keep referring to Speed Class or UHS Speed Class standards, it may create a lot of confusion. For example, some may think that a memory card carrying only V30 marking is not compatible with devices asking for U3 cards. In reality, U3 and V30 refer to the exact same 30MB/s minimum sustained write speed.

Hopefully, the following chart (created by SD Card Association) explains things further, as it clearly shows where the speed classes overlap.

Minimum Sequential Write Speed	Speed Class			Corresponding Video Format
	Speed Class	UHS Speed Class	Video Speed Class	
Card Image				The necessary speed varies by each recording/playback device condition in the same format.
90MB/sec			V90	 8K Video  4K Video  HD/Full HD Video  Standard Video
60MB/sec			V60	
30MB/sec		U3	V30	
10MB/sec	C10	U1	V10	
6MB/sec	C6		V6	
4MB/sec	C4			
2MB/sec	C2			

Put simply, since Video Speed Class was created to replace previous speed classes, you can pretty much just focus on that and ignore the rest. Besides, dedicated filmmakers and photographers should hardly ever look into SD cards that don't hold either a V60 or V90 rating.

### Refresh Pro Compatibility Marking

ProGrade Digital SD cards with the R logo on the label are compatible with our [Refresh Pro software](#). Indicated by the letter R with an arrow inside. Refresh Pro allows you to check your card's health and refresh it to factory-new condition. That helps to increase the lifespan of your card and ensures it keeps operating at peak performance.

Hopefully, you now have a better understanding of what all those markings and symbols on SD cards mean.

To make finding the right memory card even easier, we have created free compatibility charts. Go check them out to see what memory card matches your camera the best.