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DepED
DEPARTMENT OF EDUCATION

SELF-LEARNING PACKAGE I

ICT 10

Quarter 1 | Week 4

Camera Flash Synchronization

Learning Competency:

Identify appropriate use if flash and its synchronization.

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WRITERS

Ready to Launch!

Module 3, familiarized you with the types of a camera lenses. Let us now move forward as we get to know about camera's flash and synchronization .

Flash can be intimidating to new photographers. At best, it's an unnatural-looking light source, and at worst it destroys the image entirely.

Flash can actually be one of the most useful tools in photography. It's essential for many different types of shots. Unfortunately, it's also one of the most misunderstood tools in photography. Yes, a flash can look unnatural. Yes, a flash can produce funky shadows. But if your flash is obvious in your image, or adds harsh shadows, you're doing it wrong. Flash is an amazing tool *if you know how to use it*.

There are many different elements to consider when using a flash, but part of reigning in that flash and actually using it to make your images better (and not worse) is to understand flash sync and flash sync modes.

Aim at the Target!

At the end of this module you are expected to:

1. *Explain the use of flash and its synchronization.*
2. Identify and explain what are the different flash sync modes.

Try This!

Picture 1

Picture 2

1. Observe the two pictures very carefully. How will you describe each picture?

Keep This in Mind!

Activity. Photography Word Search

Direction: Find and line the vocabulary words in the grid. Look for them in all directions including backwards and diagonally.

T	R	F	L	A	S	H	S	Y	N	C	H	F	F	C	A	M
S	E	E	L	E	N	S	E	S	C	A	M	E	R	A	S	D
E	D	M	A	N	U	A	L	M	O	D	E	F	L	A	S	L
D	E	A	M	R	E	A	R	F	R	O	N	L	T	Y	U	O
O	Y	S	Y	N	C	H	R	O	N	I	Z	A	T	I	O	N
M	E	C	F	O	Y	U	W	I	D	E	C	S	E	M	S	L
N	R	A	L	K	E	L	R	I	G	U	A	H	L	I	E	O
O	E	M	U	I	H	G	M	T	D	O	Z	S	E	A	Z	W
I	D	E	S	A	S	H	O	E	A	L	O	Y	P	A	E	L
T	U	R	H	D	I	T	R	I	G	I	R	N	H	N	E	I
O	C	A	L	D	F	E	I	E	T	G	N	C	O	G	R	G
M	T	S	I	L	Y	P	O	L	I	H	H	S	A	L	F	H
T	I	H	G	E	R	E	N	D	M	T	R	O	Y	E	A	T
S	O	O	D	I	O	R	A	T	E	S	T	K	A	N	G	E
A	N	E	T	L	A	T	S	S	L	O	W	S	Y	N	C	H
F	R	O	N	T	C	U	R	T	A	I	N	S	Y	N	C	H

REAR CURTAIN SYNCH **FRONT CURTAIN SYNCH** **LOW LIGHT** **FLASH SYNCH**

SLOW SYNCH **FAST MOTION** **RED EYE REDUCTION**

Abstraction and Generalization

What is flash sync?

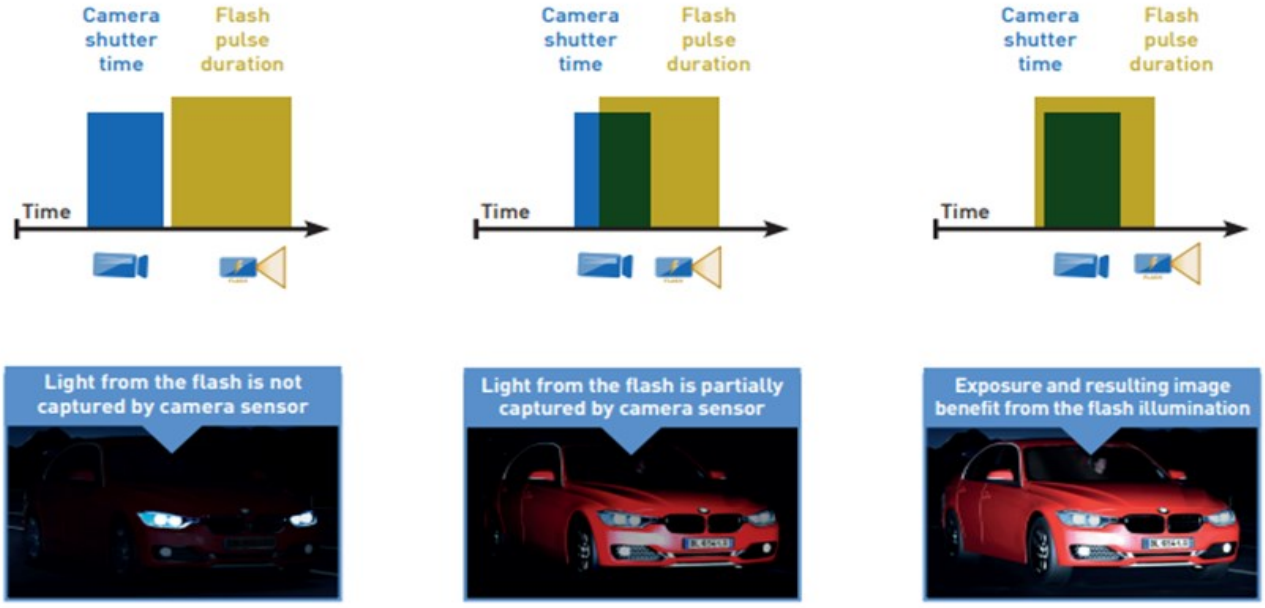
For the flash to light the image, it has to synchronise with the camera's shutter, otherwise, the flash won't fire at the same time the image is being taken. "Sync" is simply short for synchronization. On the default flash mode, the flash is synced to go off for the duration of the image.

Flashes can't fire as quickly as cameras can snap a photo, however. The term flash sync is used inside a camera's technical specifications to indicate the highest shutter speed that can be used with a flash. On most DSLRs, the flash sync is about 1/200 or 1/250.

What happens if you use a shutter speed over 1/250 with a flash? In most modes, the camera won't let you adjust the settings any higher than that with the flash on, but manual mode is an exception. If you use a shutter speed higher than the flash sync speed in manual mode, you'll wind up with a black band across the bottom of your image.

Manual mode on a **camera** allows the **photographer** to determine the exposure of an image by letting them select an aperture value and a shutter speed value. ... These **modes** give the user **control** of either aperture or shutter speed, while letting the **camera** determine the remaining **setting** for best exposure.

The goal of synchronization is to assure that a flash light emission and an image capture by the camera occur simultaneously.



What are flash sync modes?

The term flash sync is also often used to describe different flash modes. The default flash mode fires the flash at the beginning of the shot. In other words, the flash is synced to go off at the beginning of the shot. But, not every flash mode fires this way.

- **Front Curtain Sync**

  This is normal regular default flash sync, where the shutter fully opens, and then the flash triggers immediately.

  This is the normal and default everyday sync mode, which typically enforces a Minimum Shutter Speed with Flash of about 1/60 second when in camera A or P or Auto modes. Because, if using flash, we don't need shutter to be any slower, the flash will illuminate things.

- **Rear Curtain Sync**

  Commonly used at very slow shutter speeds to make long blurred trails in the ambient light, and then the flash to freeze the moving subject making the trails. Rear Curtain sync puts subject at the end of the long blur trail, with the trail following the motion naturally, instead of seeing the blur leading out in front of the subject.

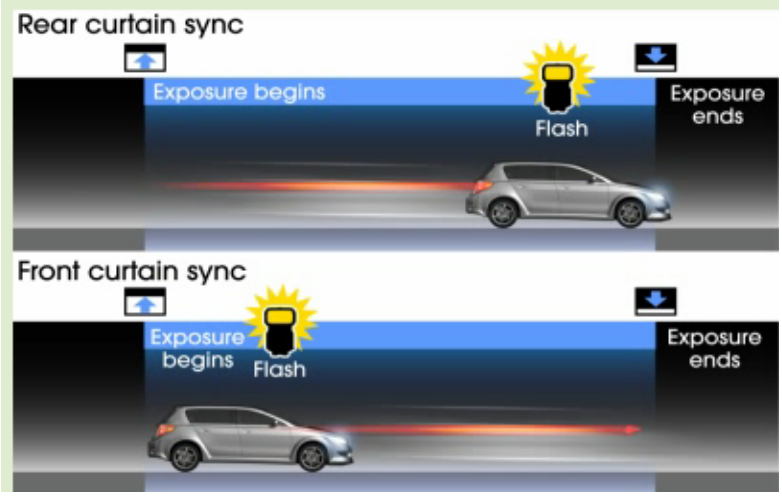
Front Curtain sync freezes the image of the subject, and then the slow ambient continues to record the ambient blur trails. This Rear Curtain Sync just freezes the subject at the end of the motion blur trail, naturally, instead of the blur trail leading the motion unnaturally.

In reality, the only purpose of Rear Curtain Sync is when a slow shutter speed could otherwise blur motion in ambient light. Rear Curtain sync does not change the motion or the blur, but it triggers the flash at the end of the motion instead of at the start of the motion (to look more natural).

Flash timing and motion trails

Rear curtain sync
The shutter opens, the motion trail is recorded, then the flash fires to capture the main image of the car just before the shutter closes.

Front curtain sync
The flash fires as soon as the shutter opens, capturing the main image of the car, then the exposure continues without flash creating a motion trail that appears to be in front of the car.



- **Slow sync flash**

The **slow sync flash** prevents that black background. Using this flash mode, the camera fires the flash for just a short portion of the shot. When the flash fires, the subject is well-lit. But when the shutter stays open even after the flash has fired, the ambient light in the background is captured, similar to how you would capture a long exposure shot of just the background. Slow sync flash then, is essential for using the flash without overpowering the existing light. Of course, since it is used with a longer shutter speed, you'll need a tripod to steady the shot

WHEN SHOULD I USE SLOW SYNC?

There are a couple of situations where you might want to use slow sync flash.

LOW LIGHT

Imagine you're taking a photo of some friends standing in front of some scenery at night.
Normally you'd have two choices. You could use your flash to illuminate your friends, but you'd probably end up with a pitch black, underexposed background. Or you could use a slow shutter speed to capture the background, but probably end up with blurry friends. Not ideal either way.
With slow sync flash you can have the best of both worlds. You'd use a slow shutter speed to correctly expose the background, and then a burst of flash to capture your friends in sharp detail.
Because the subjects in the photo aren't moving it doesn't really matter whether you use front or rear curtain sync. Most people tend to use rear curtain, and that's the default setting on most cameras.
Ideally you should use a tripod to keep the background sharp, but you can also get some nice effects by hand-holding your camera.

Slow sync helps you properly expose all parts of your scene. Image by David Goehring.

FAST MOTION

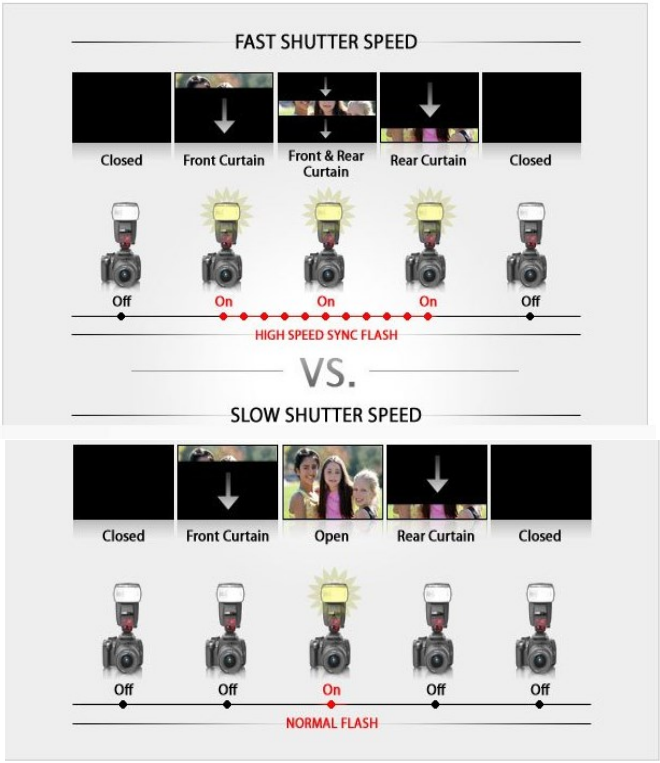
Slow sync flash is really effective for sports and action photography. It allows you to capture the subject in tack-sharp detail but also get some motion blur in the shot. This gives your image a sense of speed and is much more pleasing than the "frozen" effect you get with normal flash.
Because the subject is moving, the flash curtain setting makes a real difference. Rear curtain is generally your best bet because it will freeze the subject at the end of the motion, with the blur behind them. This results in a photo with a "natural" sense of movement.

Use slow sync to capture motion blur while keeping your subject sharp. Image by Jim.

Front curtain will freeze the subject at the start of the motion, with the blur in front of them. This can look unnatural but it can also be a really interesting effect, so play around and see what you can come up with.

How Slow Sync Flash Works?

The slow sync flash mode lets you select the synchronization of shutter speed and the power/duration of the flash. When you use slow sync, the shutter remains open much longer to allow in more light for your exposure. This means that your main subject needs to remain as still as possible, or if they move slightly their edges will be soft. The flash fires at a specific moment during the longer exposure (which you can select) and the flash duration is much shorter than the shutter speed in “standard” flash mode. Usually flash photography freezes your image, but the extended shutter speed causes the background to blur out, but is effectively illuminated — and very much sharp because of the flash. You can use smaller apertures, too, to ensure greater sharpness in the final image.



- **Red-Eye Reduction**

This is regular front curtain sync, but it delays the shutter about a second while the flash flashes about three times, trying to cause the subjects eye pupils to contract smaller, hoping to prevent or reduce the red eye. However, the best way to reduce red eye is to provide more distance between flash and lens, at least about an inch of separation for each foot distance to the subject. Red eye is caused by the direct reflection from the retina inside the eye, and a flash at a wider angle will eliminate that possibility from reflecting back.

Application.

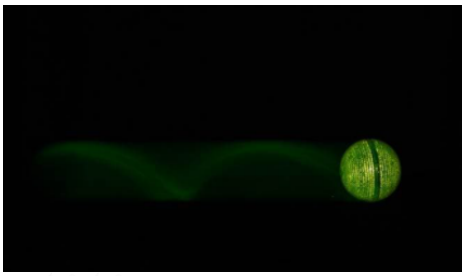
Direction: Identify what type of flash sync mode was used to capture the pictures below.

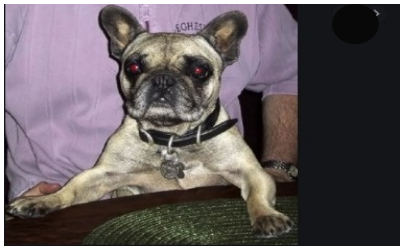
Activity. Naming flash synch modes

1. 

2. 

3. 

4. 

5. 

Reflect

Complete the statements below.

I understand _____

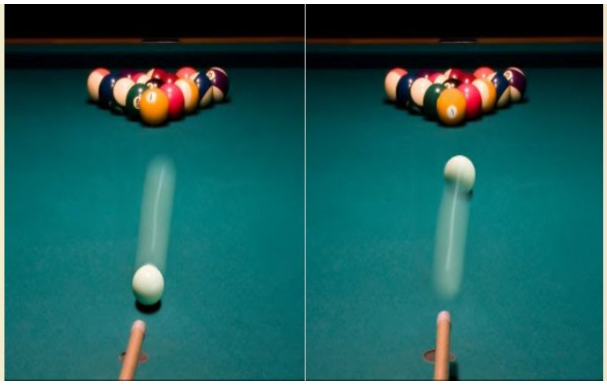
I don't understand _____

I need more information about _____

_____

Reinforcement & Enrichment

1. Identify what flash sync mode was used in the pictures and explain how it was shot?



Assess Your Learning

Multiple Choice. Read each item very carefully. Select the best answer. Select the **letter** of your choice.

1. The default flash mode fires the flash at the _____of the shot .
   a. middle b. beginning c. anytime b. end
2. In most DSLRs, the flash sync is about _____
   a. 2/100 B. 1/100 c. 1/200 d. 1/300
3. What do wee need to steady a shot?
   a. Shutter b. Tripod c. Camera handle d. Aperture
4. The goal of synchronization is to _____
   a. Synchronize the firing of a photographic flash
   b. Synchronize with the camera's shutter, otherwise, the *flash* won't fire at the same time the image is being taken.
   c. All of the above
   d. None of the above
5. Firing at the end of the exposure in rear curtain sync will result to:
   a. work with rolling shutter sensors
   b. fire camera lash for just a short portion of the shot.
   c. help freeze motion at the conclusion of the shot, instead of the beginning.
   d. none of the above

True or False. Write **T** if the statement is true and **F** if the statement is false.

6. The best way to reduce red eye is to provide more distance between flash and lens.
7. In a rear curtain sync, the flash fires as soon as the shutter opens, triggers the flash immediately.
8. Front curtain sync puts subject at the end of the long blur trail.
9. You use a slow shutter speed to correctly expose a background.
10. Rear curtain freeze the subject at the end of the motion, with the blur behind them.

References & Photo Credits

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