

University of Ljubljana  
Faculty of Natural Sciences and Engineering  
Chair of Information and Graphic Arts Technology

# Fotografija 1



# Priporočila za uporabo mask v času širjenja okužbe s SARS-CoV-2

- ✦ povezava:
- ✦ <https://www.nijz.si/sl/priporocila-za-uporabo-mask-v-casu-sirjenja-okuzbe-s-sars-cov-2>

Zaradi Covid-19 bo letos izvajanje v 5-ih blokih





## PRAVILNA NAMESTITEV ZAŠČITNE MASKE ZA ENKRATNO UPORABO



1.

Najprej si dobro umijemo roke z milom in vodo ali si jih razkužimo.



2.

Masko obrnemo tako, da je vgrajena kovinska žička na vrhu. Pri barvni maski pazimo, da je bela stran obrnjena navznoter.



3.

Zanke zatakujemo za ušesa, vgrajeno kovinsko žico pa pritisnemo ob nos, da se maska tesno prileže obrazu.



4.

Masko držimo na nosu, njen spodnji del potegnemo čez brado.



5.

Masko je pravilno nameščena.

Maska je namenjena ENKRATNI uporabi. ZAMENJATI jo je treba po DVEH URAH oziroma POGOSTEJE, če je VLAŽNA.

Pravilno nameščena maska mora pokrivati USTA, NOS in BRADO.



## PRAVILNA ODSTRANITEV ZAŠČITNE MASKE



1.

Najprej si dobro umijemo roke z milom in vodo ali si jih razkužimo.



2.

Pazimo, da masko primemo samo za ušesne zanke, saj se sicer lahko okužimo.



3.

Masko vstavimo v plastično vrečko, ki jo z vozlom ali elastiko dobro zapremo in jo na varnem mestu hranimo 72 ur.



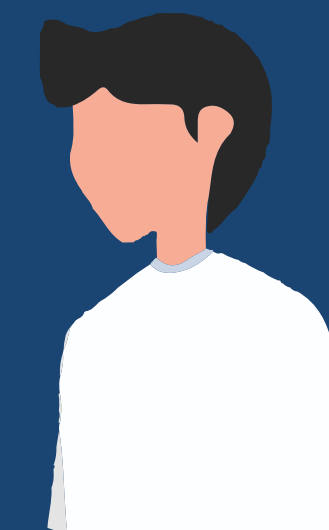
4.

Vrečko z masko po pretečenih 72 urah odvržemo v koš z mešanimi odpadki.



5.

Ponovno si umijemo oziroma razkužimo roke.



6.

Masko smo varno odstranili z obraza.



# Fotografija 1



nosilka predmeta: doc. dr. Marica Staešinič

asistent: Andrej Učakar

tehnična sodelavka: Jana Rozman



# Fotografija 1

**asistent: Andrej Učakar**

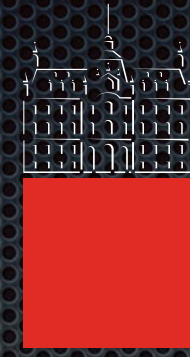
kontakt:

govorilna ura: ob četrtnih med 10. in 11. uro, oziroma po predhodnem dogovoru, kabinet K-520

email: [andrej.ucakar@ntf.uni-lj.si](mailto:andrej.ucakar@ntf.uni-lj.si)

web: [www.grafika.si/andreju](http://www.grafika.si/andreju)





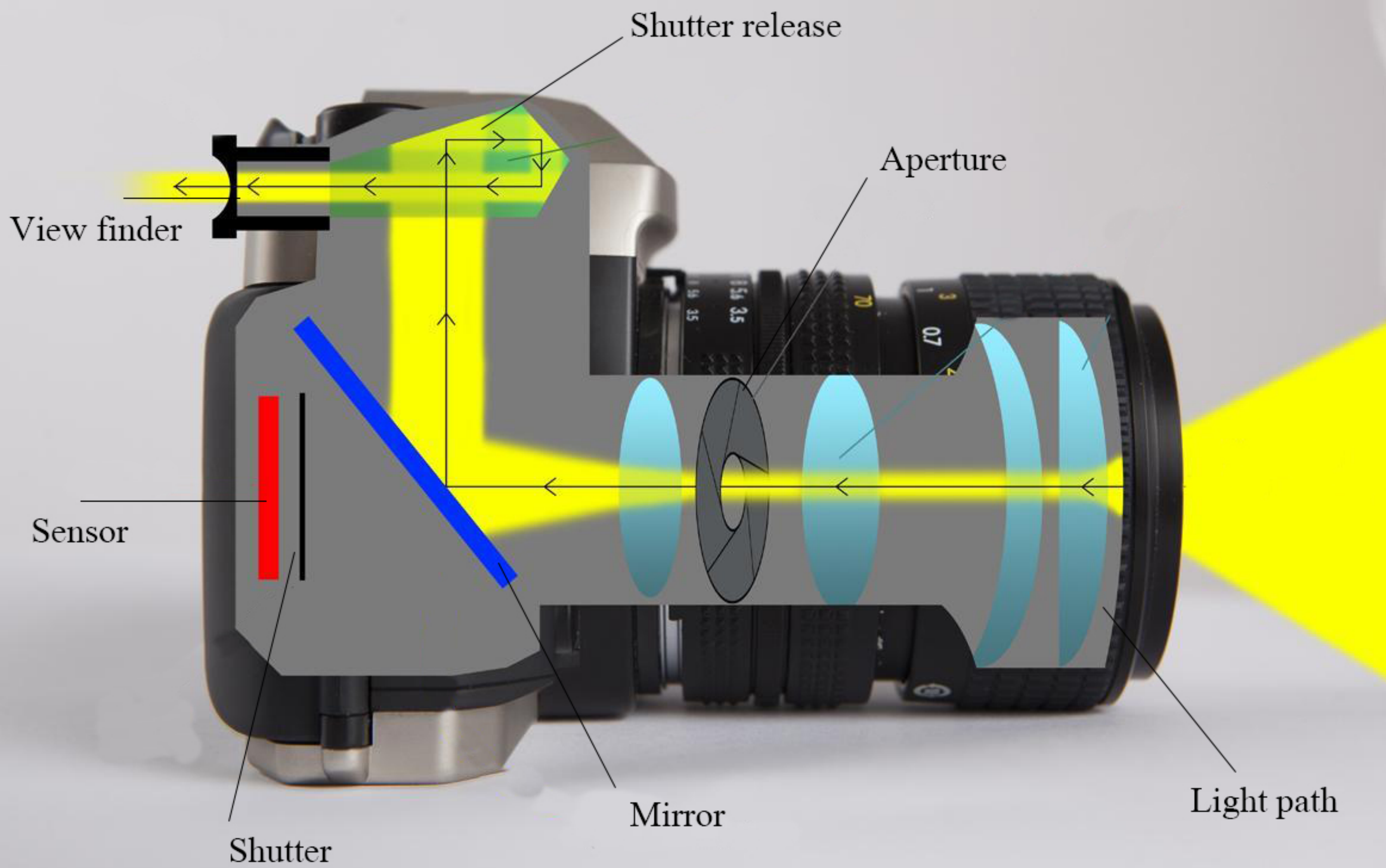
University of Ljubljana  
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# Osnove delovanja fotoaparata/kamere

Andrej UČAKAR

Ljubljana, 5.10.2020







### PICTURE REVIEW BUTTON



### VIEWFINDER

The main source for viewing the scene and menu options



### LCD WINDOW

### DIOPTER

It allows you to customize the viewfinder so that you can see a clear focused image.



### LENS ALIGNMENT MARK

Line up the matching dots to fit the lens into the mount, and then twist until it locks.



### SHUTTER RELEASE

When pressed, the shutter of the camera is "released", so that it opens to take a picture.

### DEPTH OF FIELD PREVIEW

It helps you see potential depth of field





## HOTSHOE

The mounting point on the top of the camera to attach a flash unit.

## SHOOTING MODE DIAL

Sets the camera to your desired shooting mode.

## LCD CONTROL PANEL

Provides information on camera settings (ISO, white balance, battery power, number of pictures left, etc.)



BATTERY  
SLOT

TRIPOD THREAD





1/125

F5.6

ISO 100

D+

-2..1..0..1..+2

M



AWB



INFO.



ONE SHOT



(511)





# Osnove delovanja kamere

- Aperture (odprtost/zaprtost zaslonke)
- Shutter speed (čas zaklopa)
- ISO
- White balance (bela točka)



1/125

F5.6

ISO 100

D+

-2..1..0..1..2

M



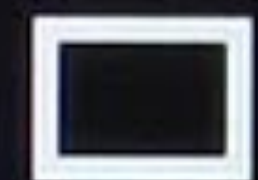
AWB



INFO.



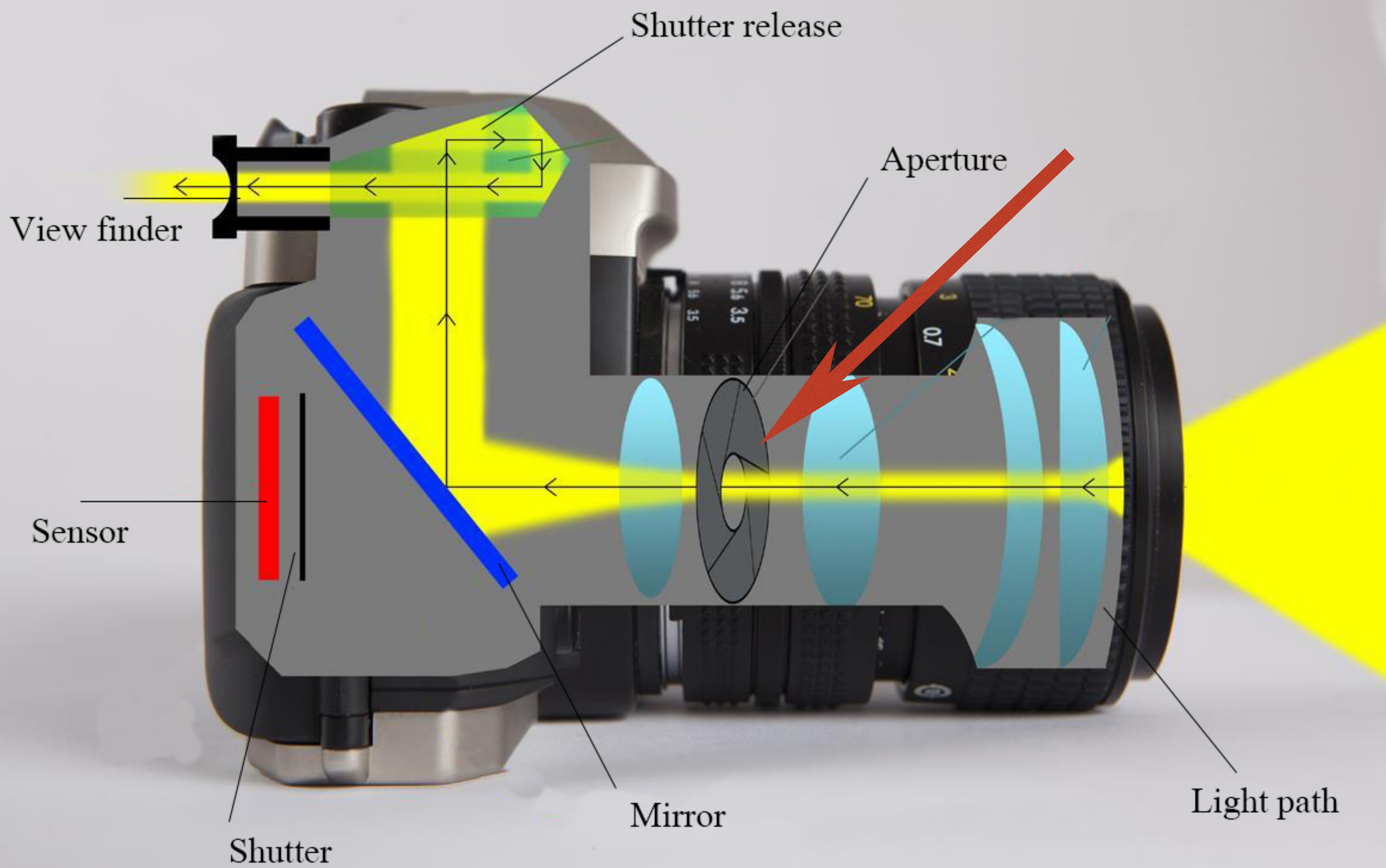
ONE SHOT



(511)









# Osnove delovanja kamere

- Aperture (odprtost/zaprtost zaslonke)

**Size of Aperture:**  
Large vs Small Aperture



f/2.8



f/4



f/5.6



f/8



f/11



f/16

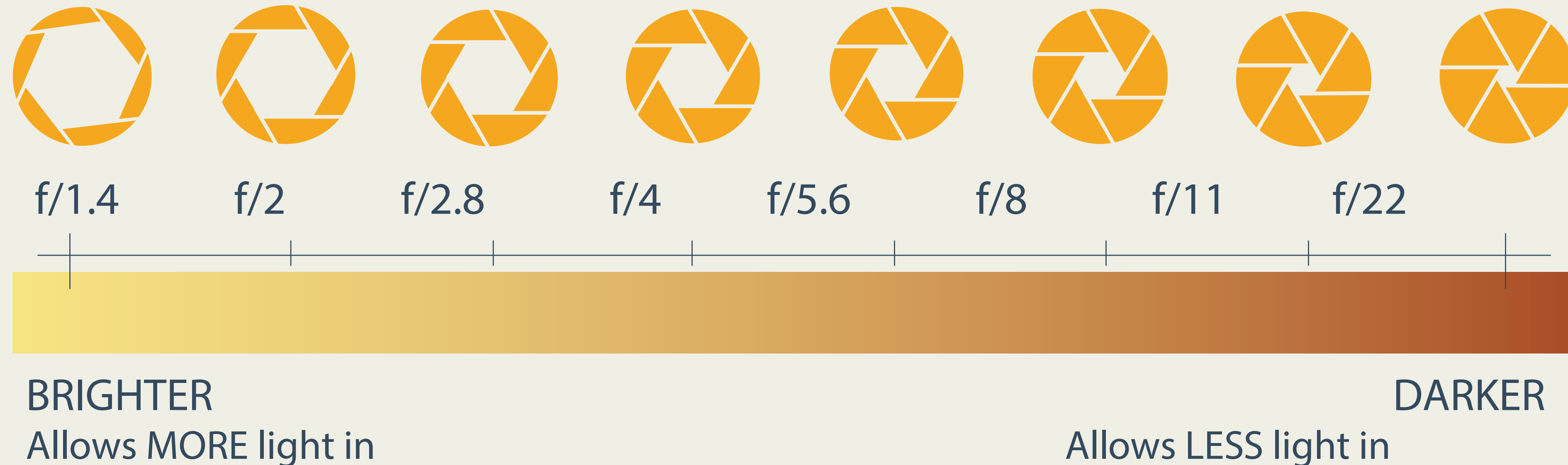




# APERTURE (f-stop)

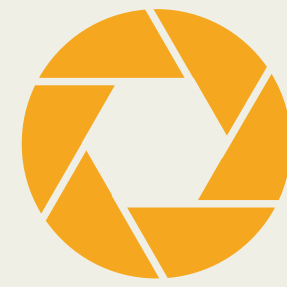
The aperture (f-stop) controls the amount of light reaching the sensor through the lens. The aperture size will regulate the sensor's degree of exposure to light.

## APERTURE SCALE



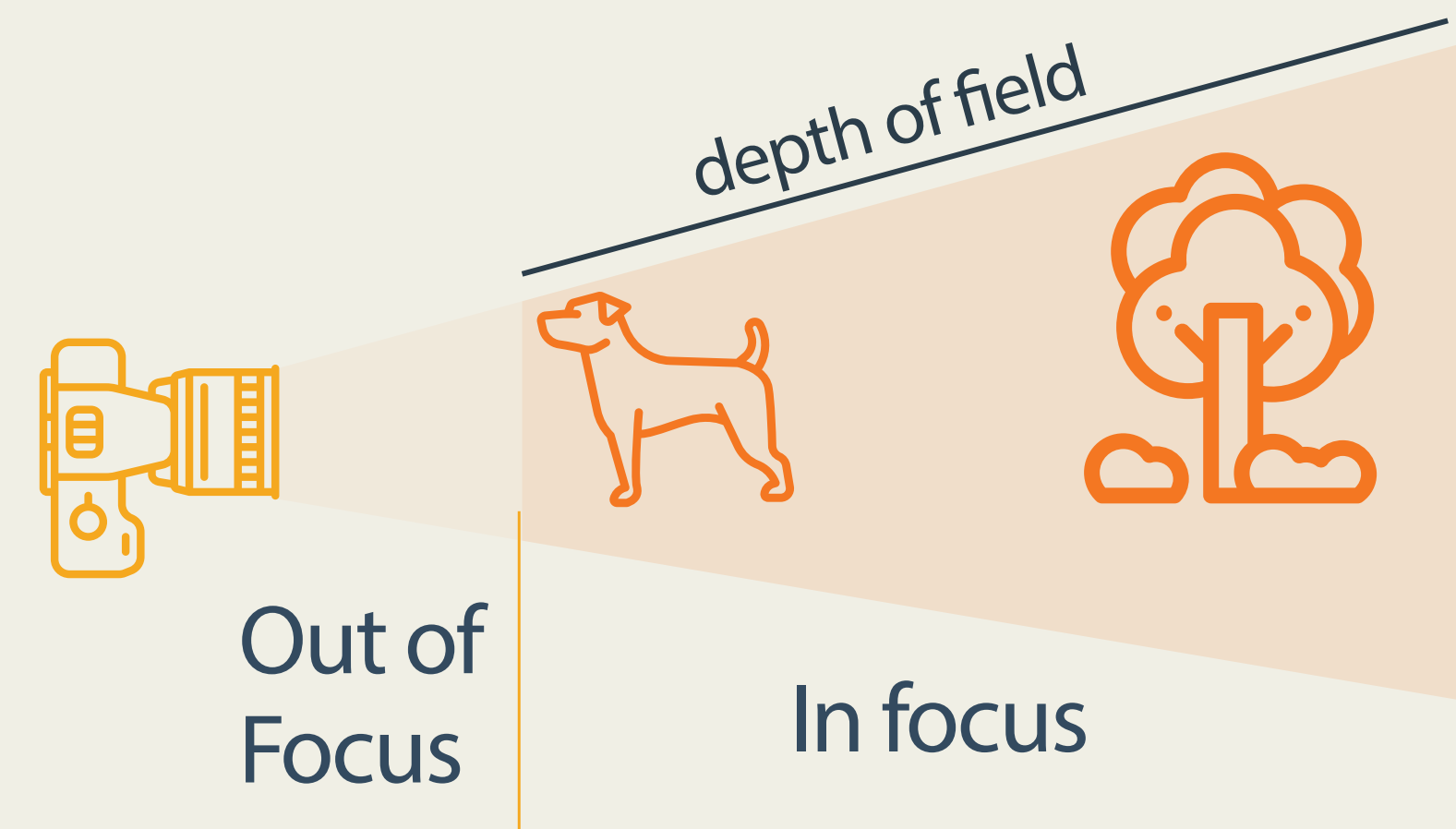
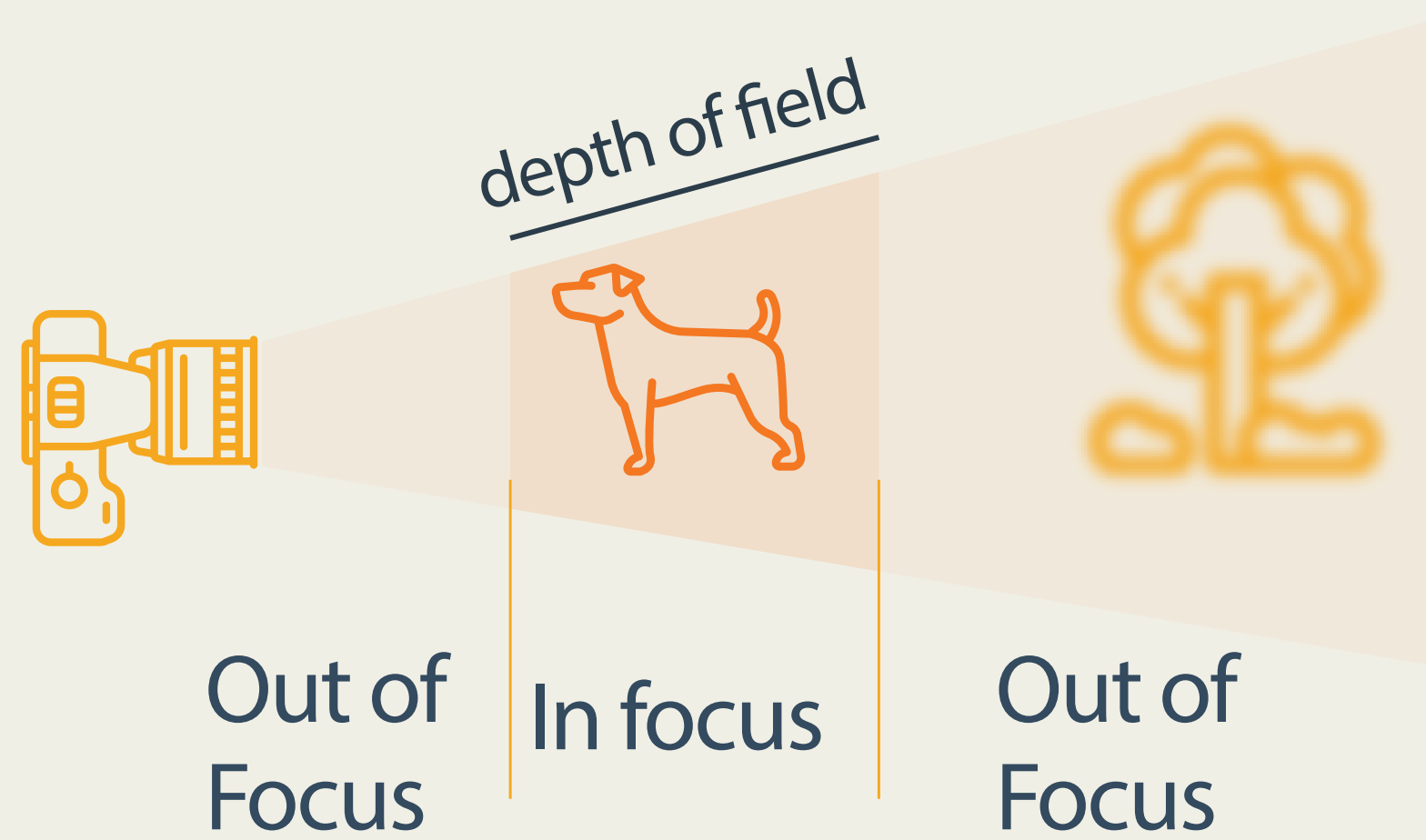


# DEPTH OF FIELD FACTOR



**BRIGHTER**  
SHALLOW DEPTH OF FIELD  
BLURRED BACKGROUND

**DARKER**  
DEEP DEPTH OF FIELD  
EVERYTHING IN FOCUS





# DEPTH OF FIELD AT DIFFERENT APERTURES



**f/2.8**

Shallow depth of field



**f/16**

Large depth of field



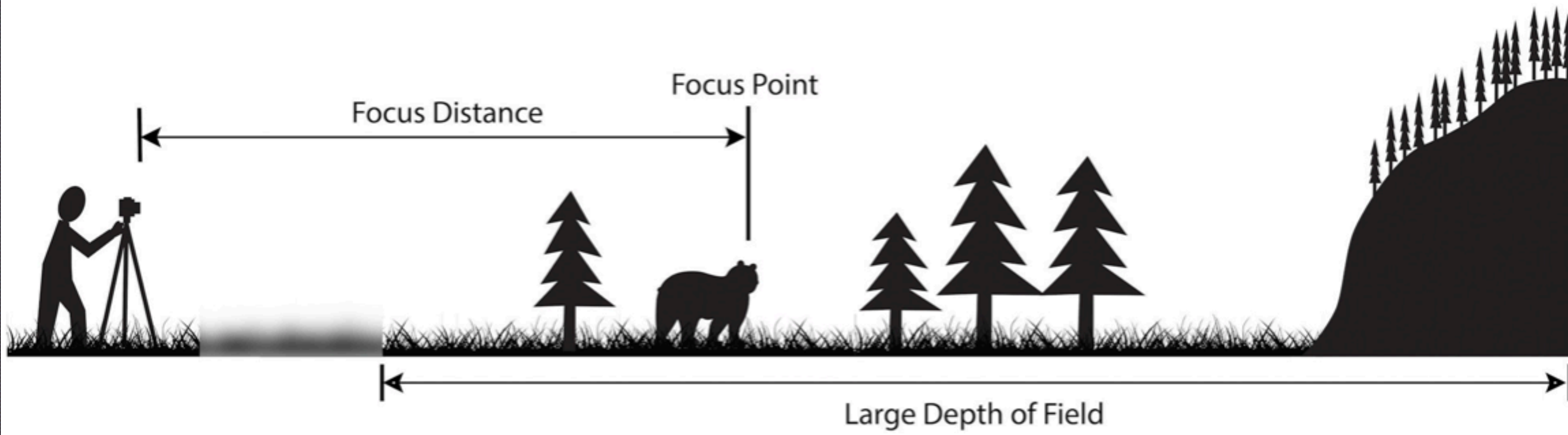
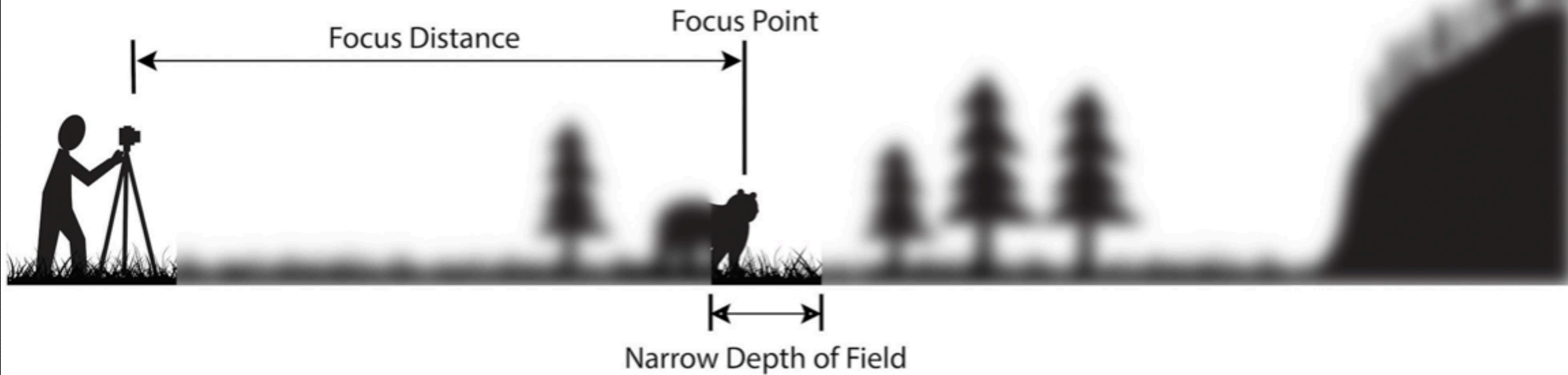


Large aperture



Small aperture



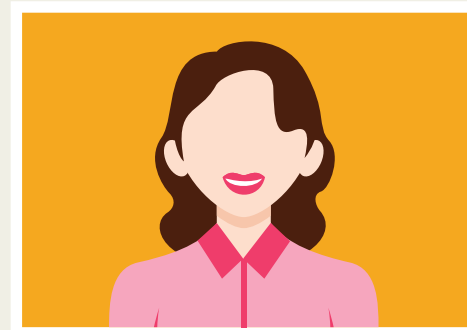




## CREATIVE USES



f/1.4  
Bokeh effect  
Low light



f/2.8 - f/5.6  
Portraits - Sports

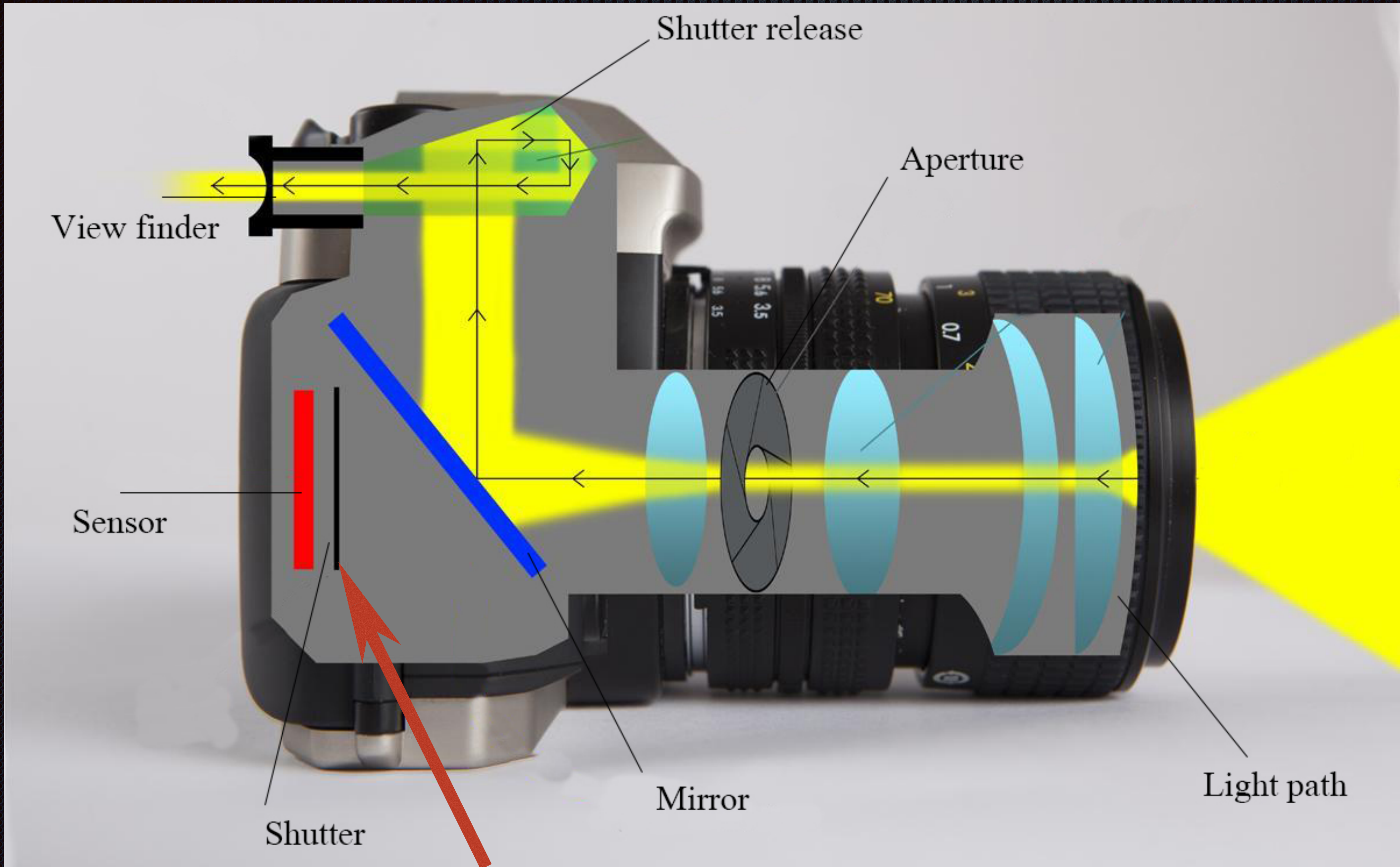


f/8 - f/16  
Landscapes



f/16 - f/32  
Long exposure







# Osnove delovanja kamere

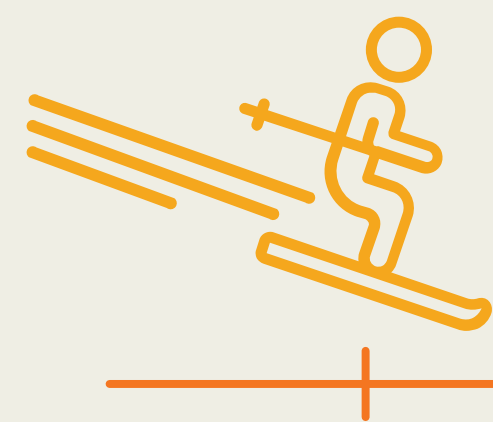
- Kaj je zaklop (shutter speed-hitrost zaklopa)?
- hitrost zaklopa je čas, ko je zaklop kamere odprt, da osvetli senzor kamere



# SHUTTER SPEED

Shutter speed is the length of time that the camera shutter is open to expose light into the camera sensor.

## HOW TO SET THE RIGHT SHUTTER SPEED TO GET SHARP IMAGES



1/4000-1/1000  
Freezing fast moving objects



1/250 - 1/60  
Everyday photos. Objects still or barely moving



1/30 - 10"  
Capturing motion with blur



## SITUATIONS



1/4000  
Very fast moving  
objects



1/1000  
Fast movement,  
sports



1/500  
People running or  
slow moving sports



1/250 - 1/60  
Slow moving people,  
children



1/60  
Slowest handheld  
setting for sharp  
images



1/30 - 1/2  
Motion blur on  
consistently moving  
objects: waterfalls,  
rivers, cities



2"  
Long exposure;  
fireworks



5"- 10"  
Long exposure:  
painting with light,  
stars, milky effect on  
moving water

LONG EXPOSURE / CREATIVE EFFECTS



## BLUR FACTOR



$1/2000$



$1/250$



$1/20$

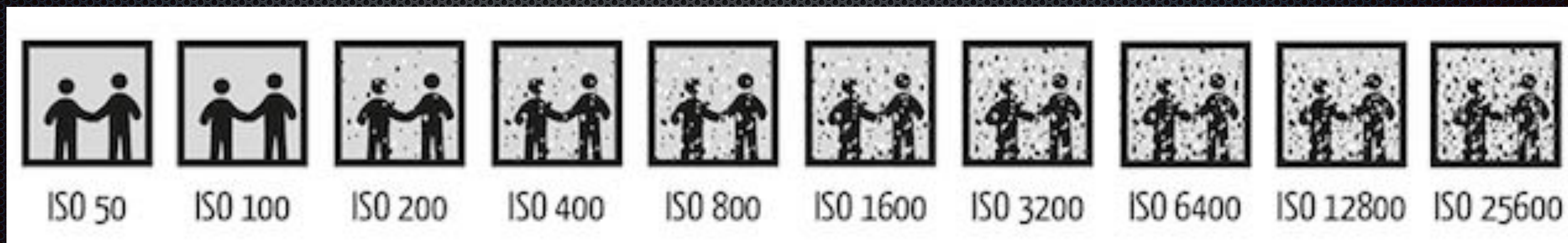


$1/2$



# Osnove delovanja kamere

- ISO občutljivost
- ISO nastavitve v kameri/fotoaparatu določa stopnjo občutljivosti fotoaparata na svetlobo. ISO vrednost je določena s številkami: nižja je številka, manjša je občutljivost na svetlobo. Višje vrednosti pomenijo, da je bolj občutljiv na svetlobo. Najnižja vrednost je 50, 100 ali 200, odvisno od fotoaparata.





## CALCULATING ISO BY THE INTENSITY OF THE LIGHT SOURCE



ISO 100

Full sun and no shade



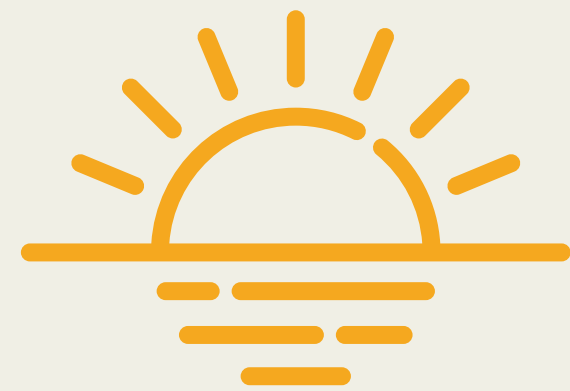
ISO 200

Shade, overcast day, or inside near a window



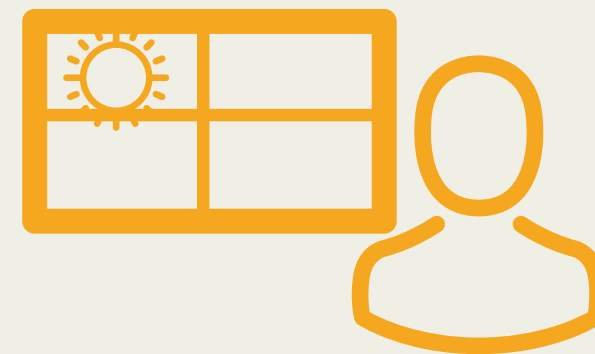
ISO 400

Deep shade or heavily overcast day



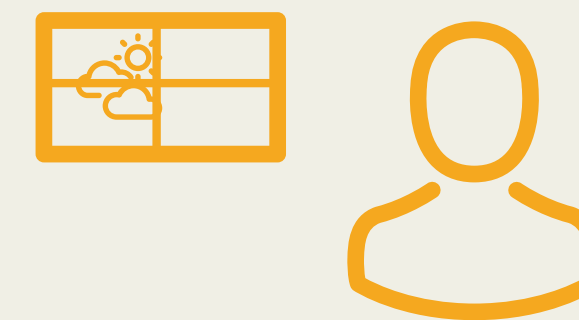
ISO 640-800

Early, or late, hours of the day: sunrise or sunset



ISO 800

Bright interiors



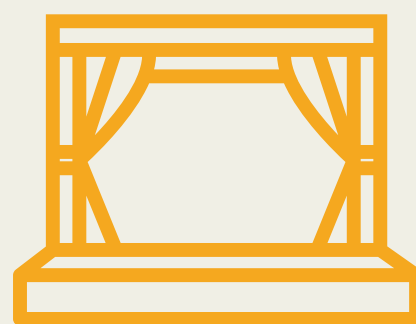
ISO 1000

Mid-level lighting condition, indoors or outdoors



ISO 1250

Low-light level interiors, or post-sunset



ISO 1600

Extremely low light

This cheat-sheet is for natural light, not electronic flash.

The noise factor of the ISO settings can vary widely depending on the camera model.



## GRAIN / NOISE FACTOR



ISO 200



ISO 640



ISO 1000



ISO 1250



ISO 1600



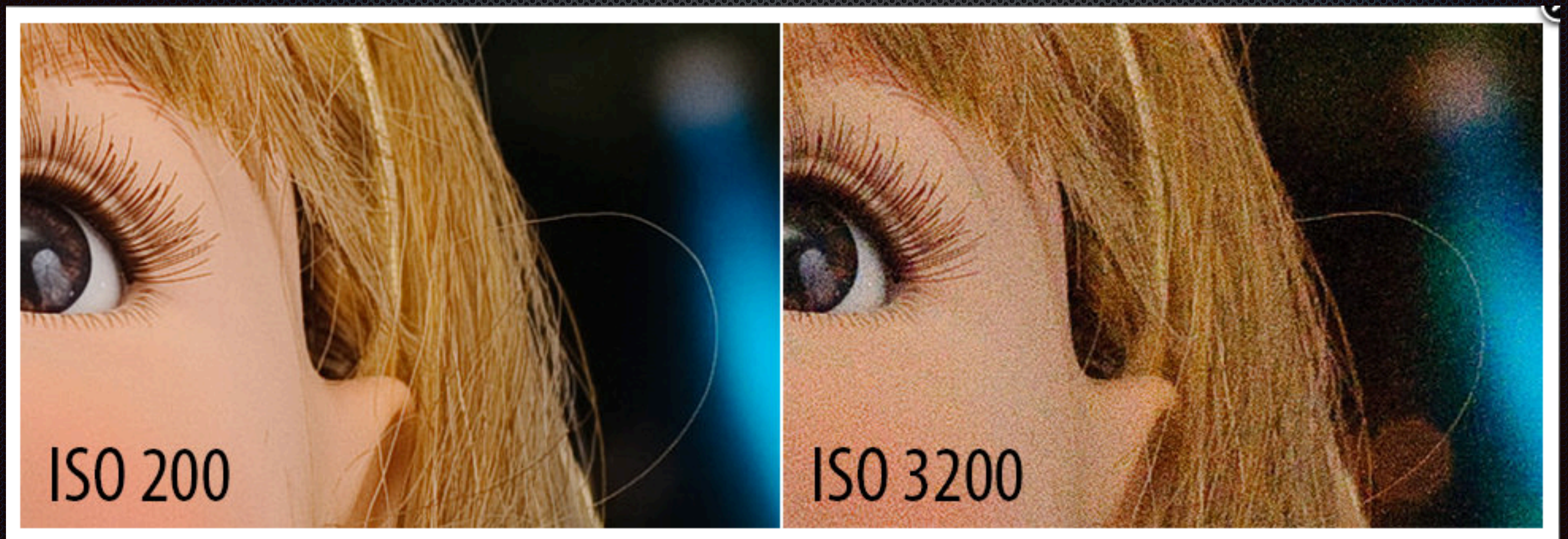
# Osnove delovanja kamere





# Osnove delovanja kamere

- ISO občutljivost







1/125

F5.6

ISO 100

D+

-2..1..0..1..+2

M



AWB



INFO.



ONE SHOT



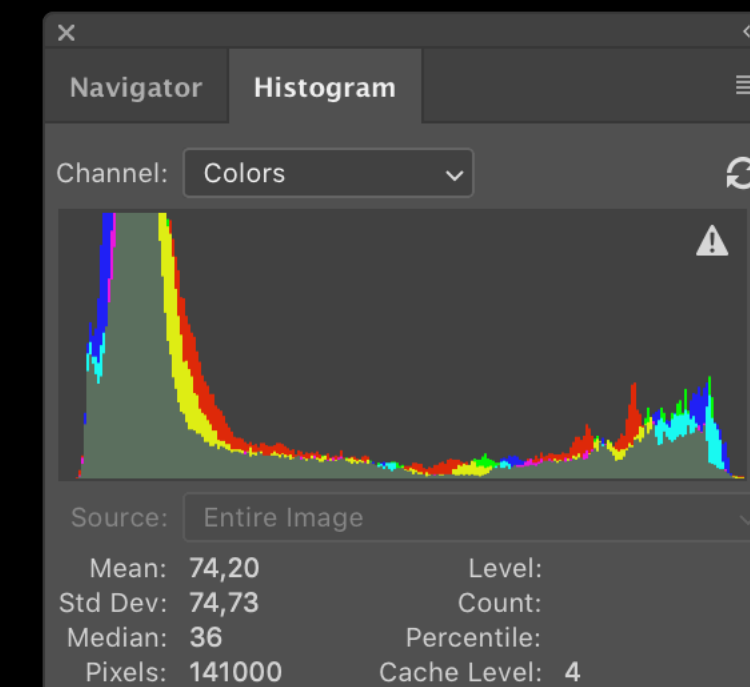
Q



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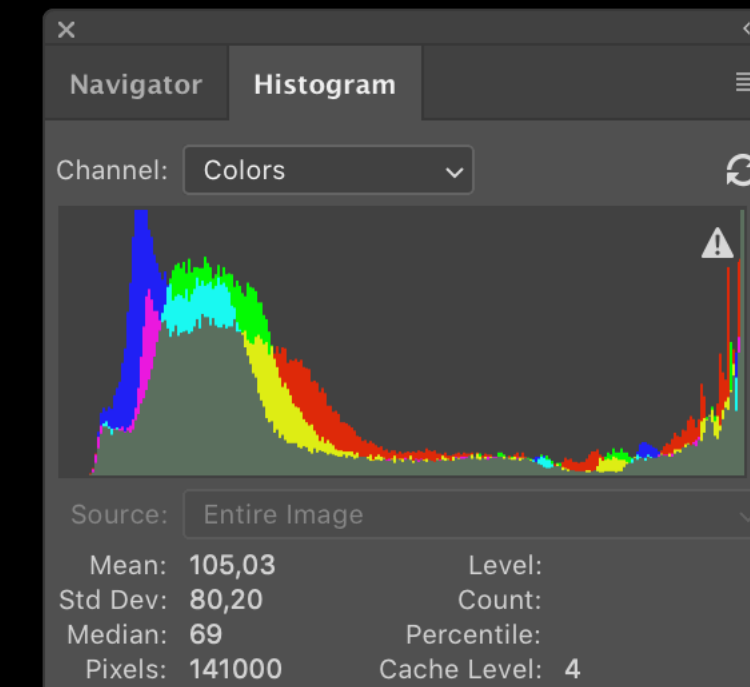






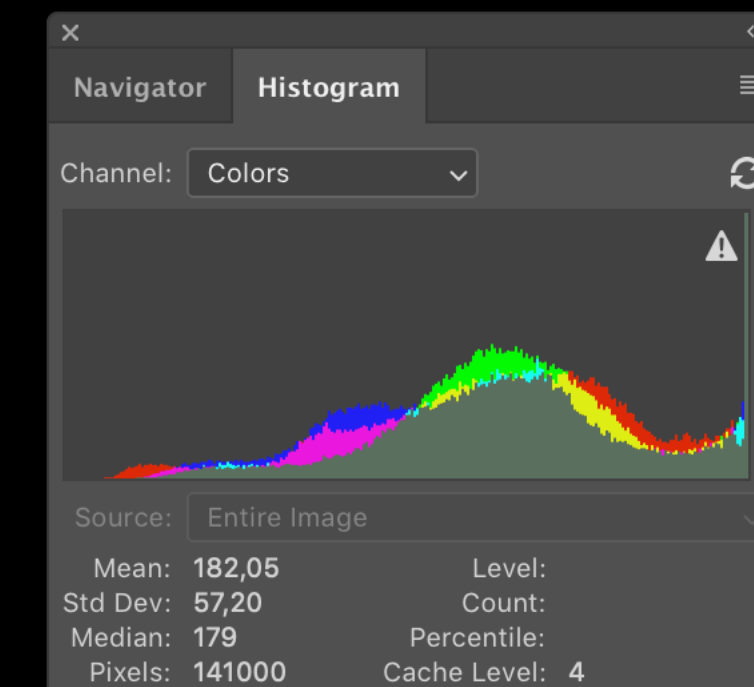
EV -1,0





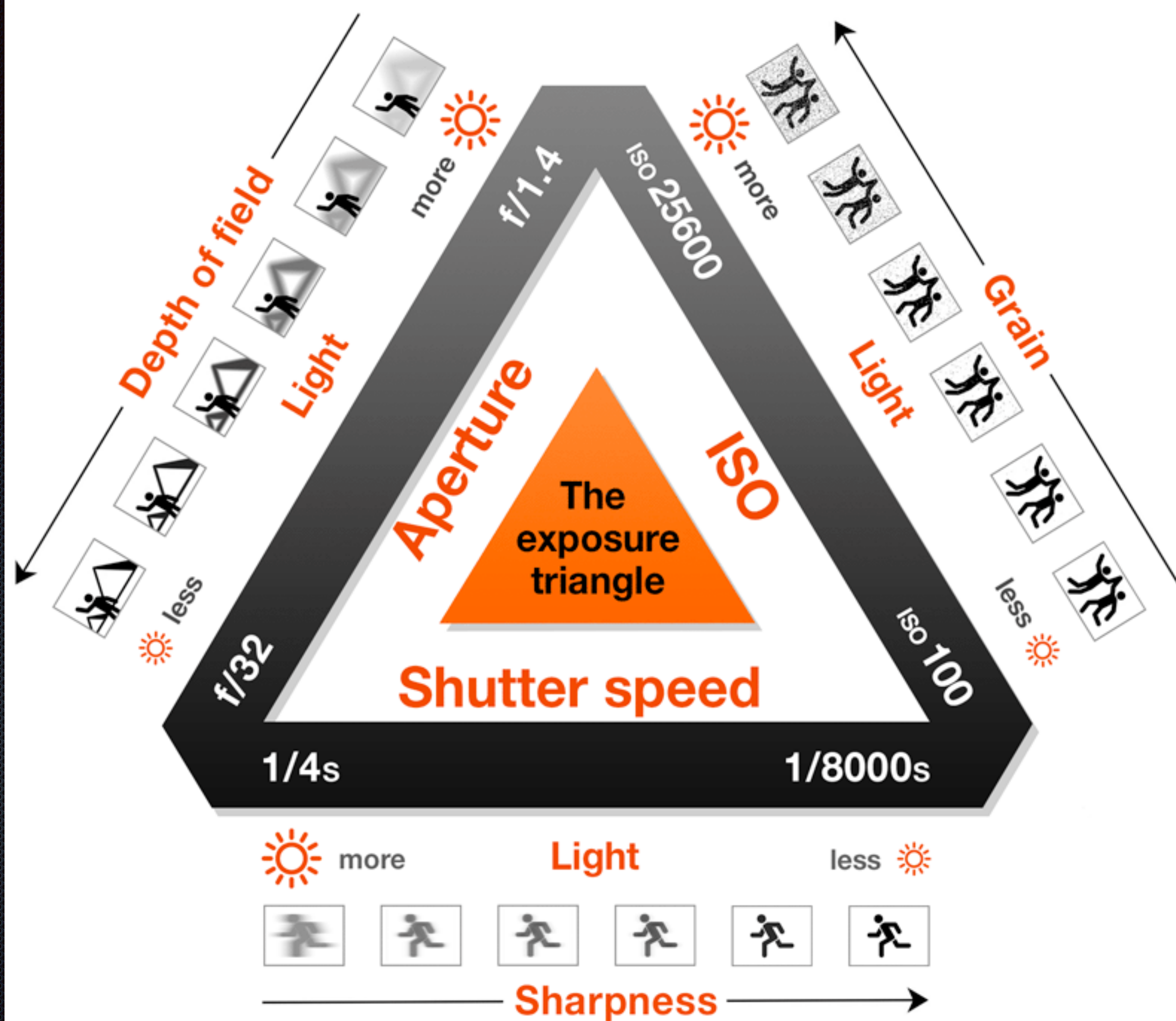
EV +- 0





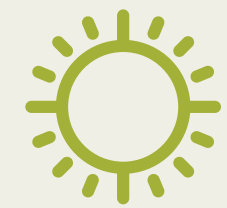
EV +1,3







## PRACTICAL EXAMPLE



### FULL SUN - OUTSIDE

#### Initial camera setting:

ISO: 100

Shutter Speed: 1/125

f/stop: f/16

#### Situation:

Subject is fast moving,  
you need to increase the  
shutter speed to get a  
sharp image.

#### Improved camera setting, as per the exposure triangle:

ISO: 100 | No change

Shutter Speed: 1/500 Move two stops up

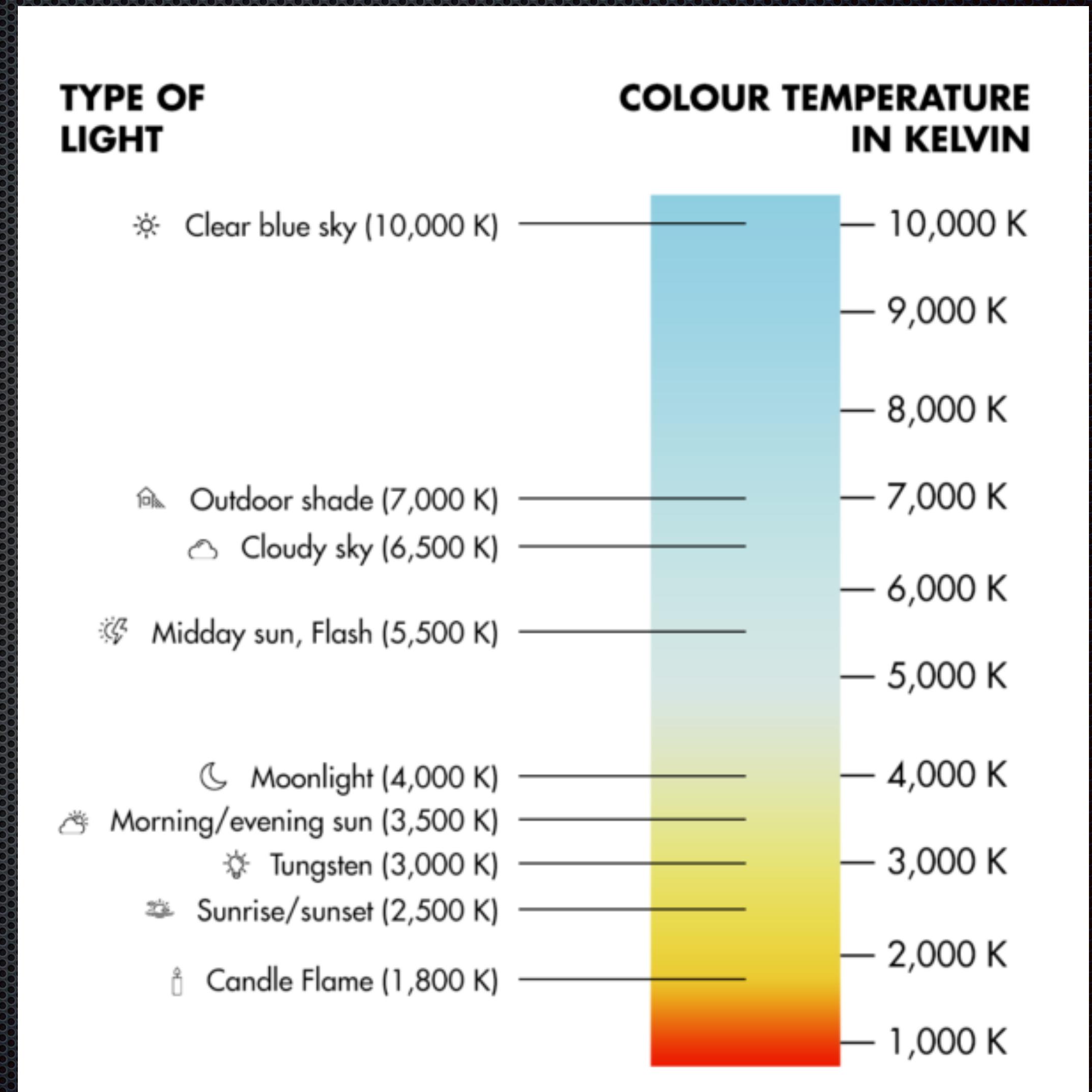
f/stop: f/8 Move two stops down

## ADVANCED CAMERA EXPOSURE

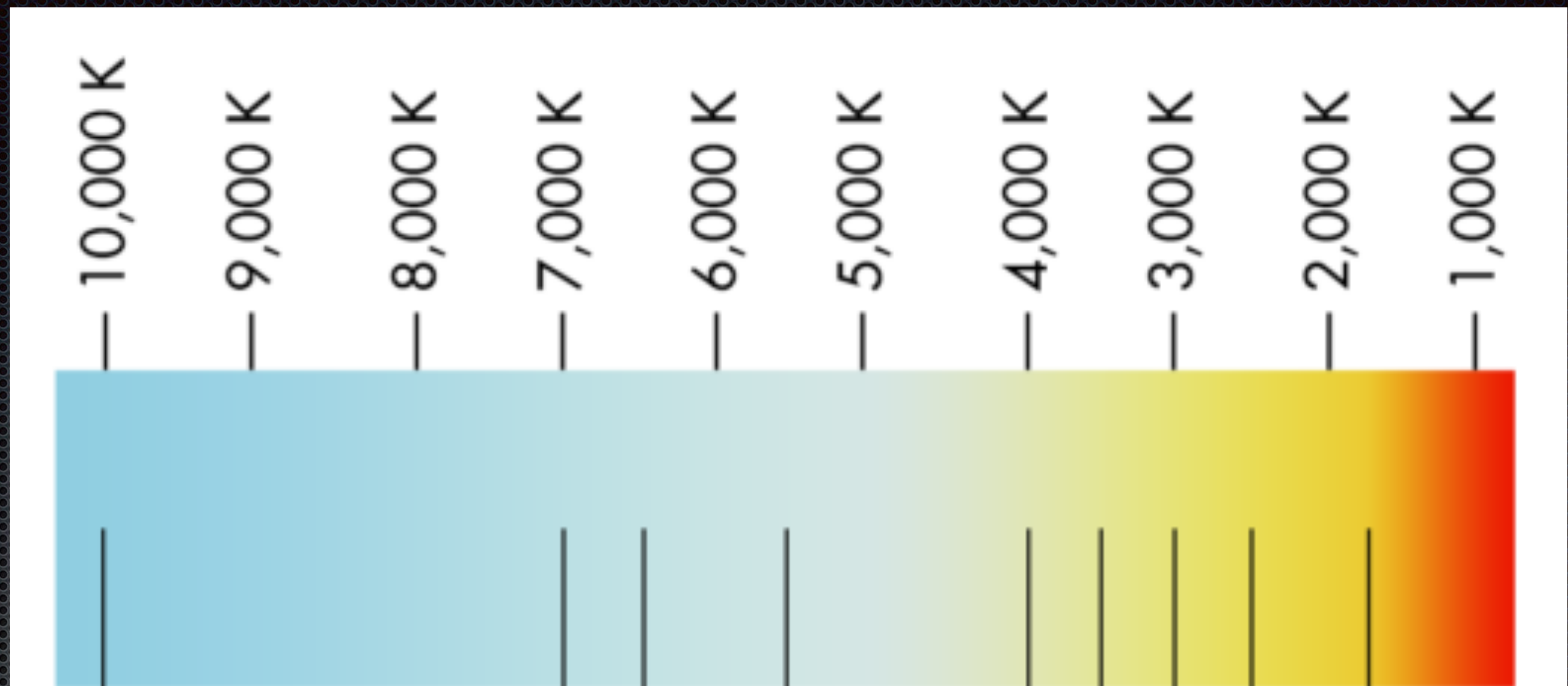


# Osnove delovanja kamere

- White balance (bela točka)







- ✦ White balance
- ✦ (bela točka)



**What is White Balance**



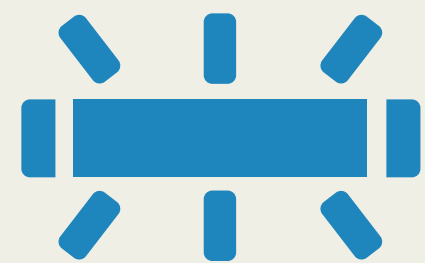
## WHITE BALANCE OPTIONS

**AWB**

**AUTO**

AUTOMATIC / AUTO

The camera sets the white balance. It can be used for snapshots, although small variations in light may change the colors from shot to shot.



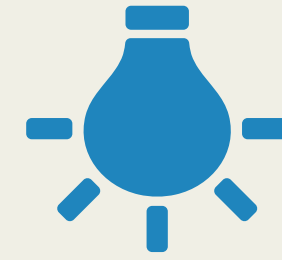
FLUORESCENT

Designed to be used under fluorescent lights, this setting adds tones in the warm-red range to the image. It's helpful to balance images that look too green.



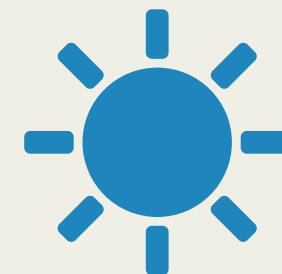
CLOUDY

Cloudy days naturally cast cooler tones. To balance the image, this setting adds warmer tones.



TUNGSTEN / INCANDESCENT

Designed for domestic lighting, since it adds cool tones to balance the color indoors. If use in other settings, the image will look very blue.



DAYLIGHT

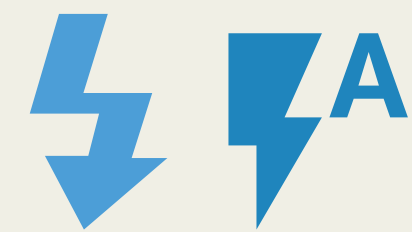
This option adds warm tones to the image, to give a final neutral-colored photograph. It balances your images when shooting under direct sunlight.



SHADE

Designed for open shade, in daylight. It adds more warmth -orange- than the Cloudy setting, and gives more natural-looking skin tones.





## FLASH / AUTO FLASH

Designed to be used with a flash unit or the in-camera flash, this option adds warm tones to the image. Using this setting prevents skin tones from looking too cold/blue.

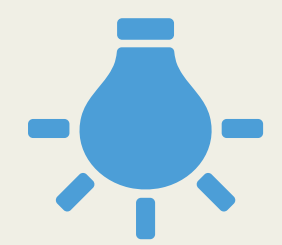


## CUSTOM

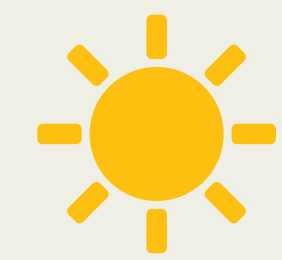
Designed to let the photographer set the white balance based on the light temperature.

Some cameras offer more options, such as:  
K: Lets you manually change the Kelvin value from 2,500 to 10,000.  
Preset (PRE): For color matching with a white card.

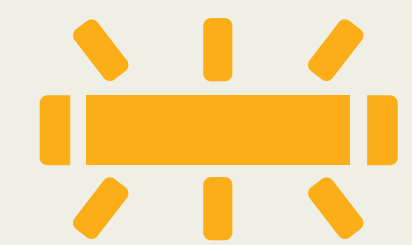
## WHITE BALANCE SITUATIONS



Domestic lights  
Candle flame



Bright skies  
Noon



Early morning  
Late evening



Built-in flash  
Electronic flash



Daylight  
overcast sky



Shade with  
clear sky



# PHOTO SHOOTING MENU

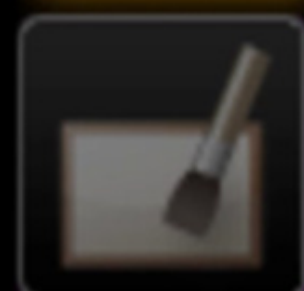
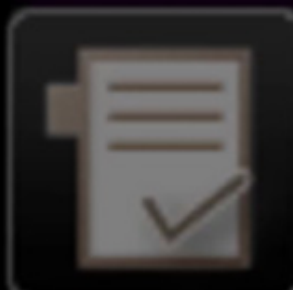
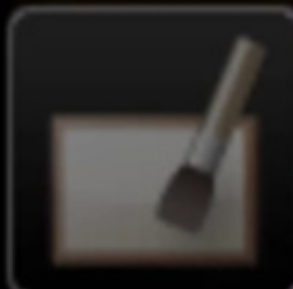


Image quality	RAW+B
Image size	--
NEF (RAW) recording	--
ISO sensitivity settings	--
<b>White balance</b>	<b>A</b>
Set Picture Control	<b>NL</b>
Manage Picture Control	--
Color space	Adobe



# White balance



AUTO Auto

 A Natural light auto

 Incandescent

 4 Fluorescent

 Direct sunlight

 Flash

 Cloudy

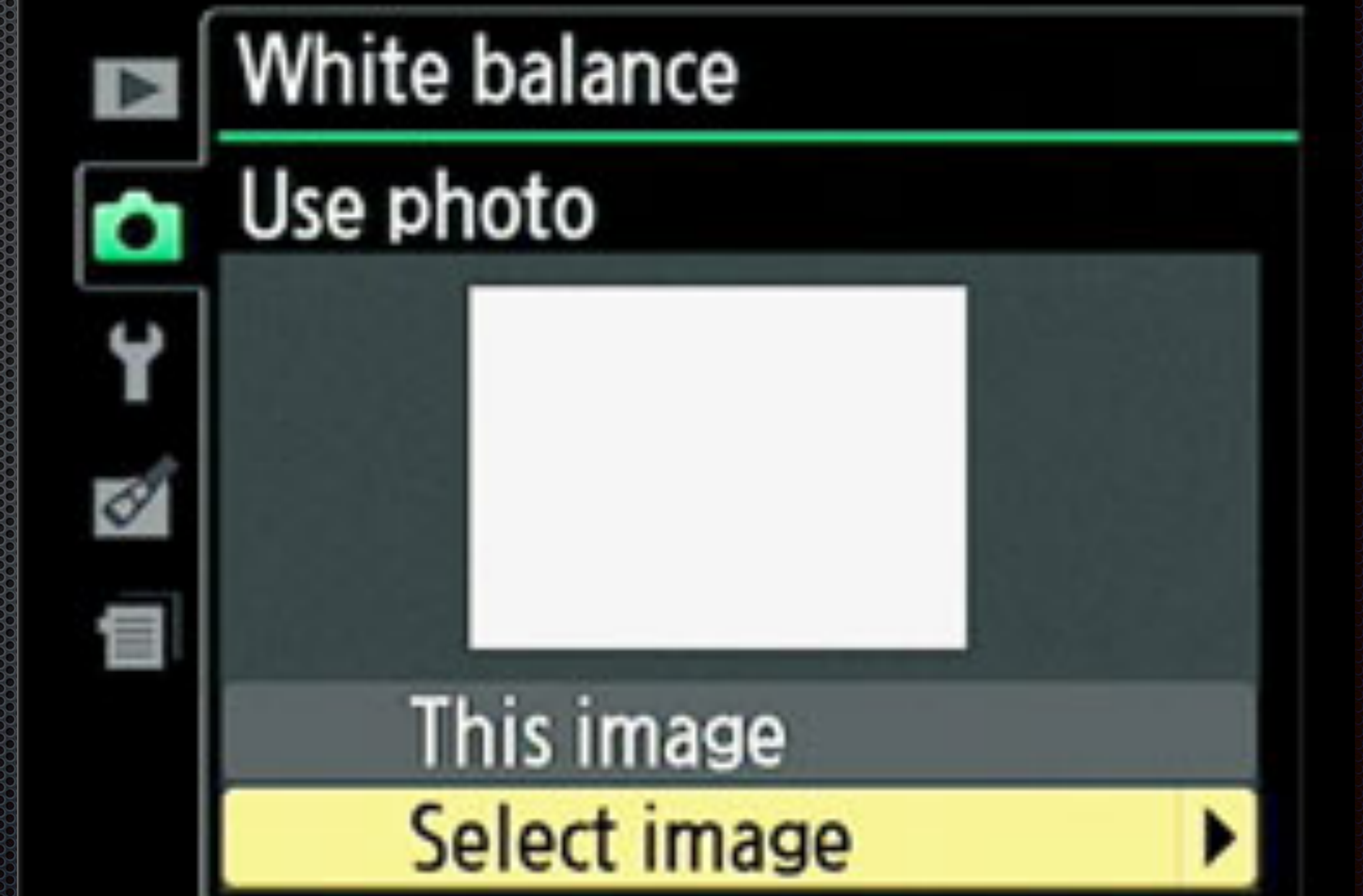
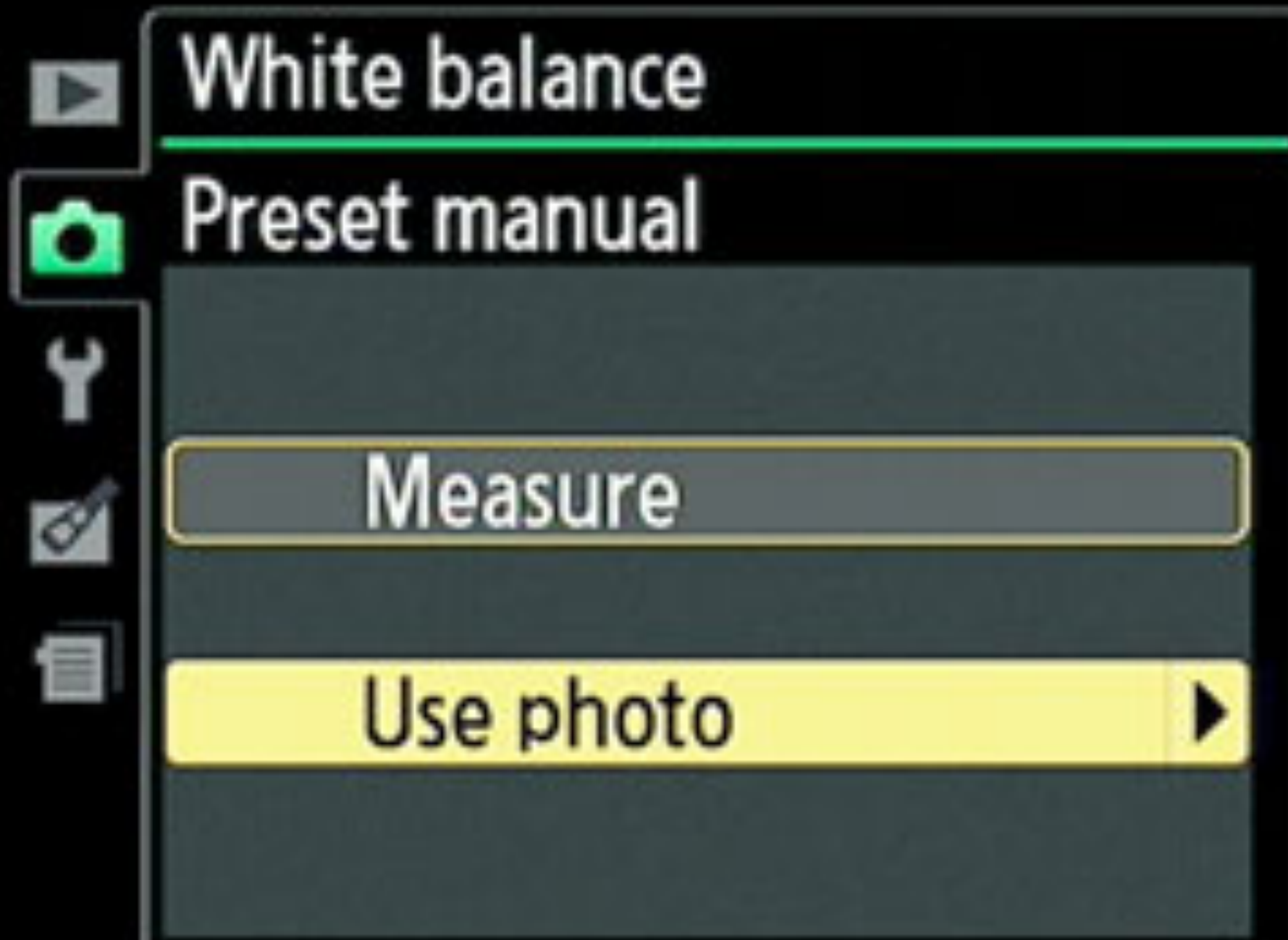
 Adjust

 OK OK



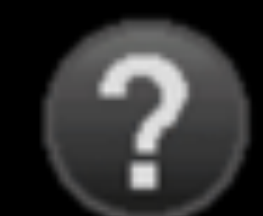
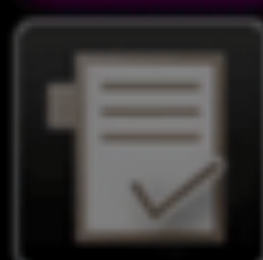
# Osnove delovanja kamere

- White balance (bela točka)





# White balance



**K** Choose color temp. ▶

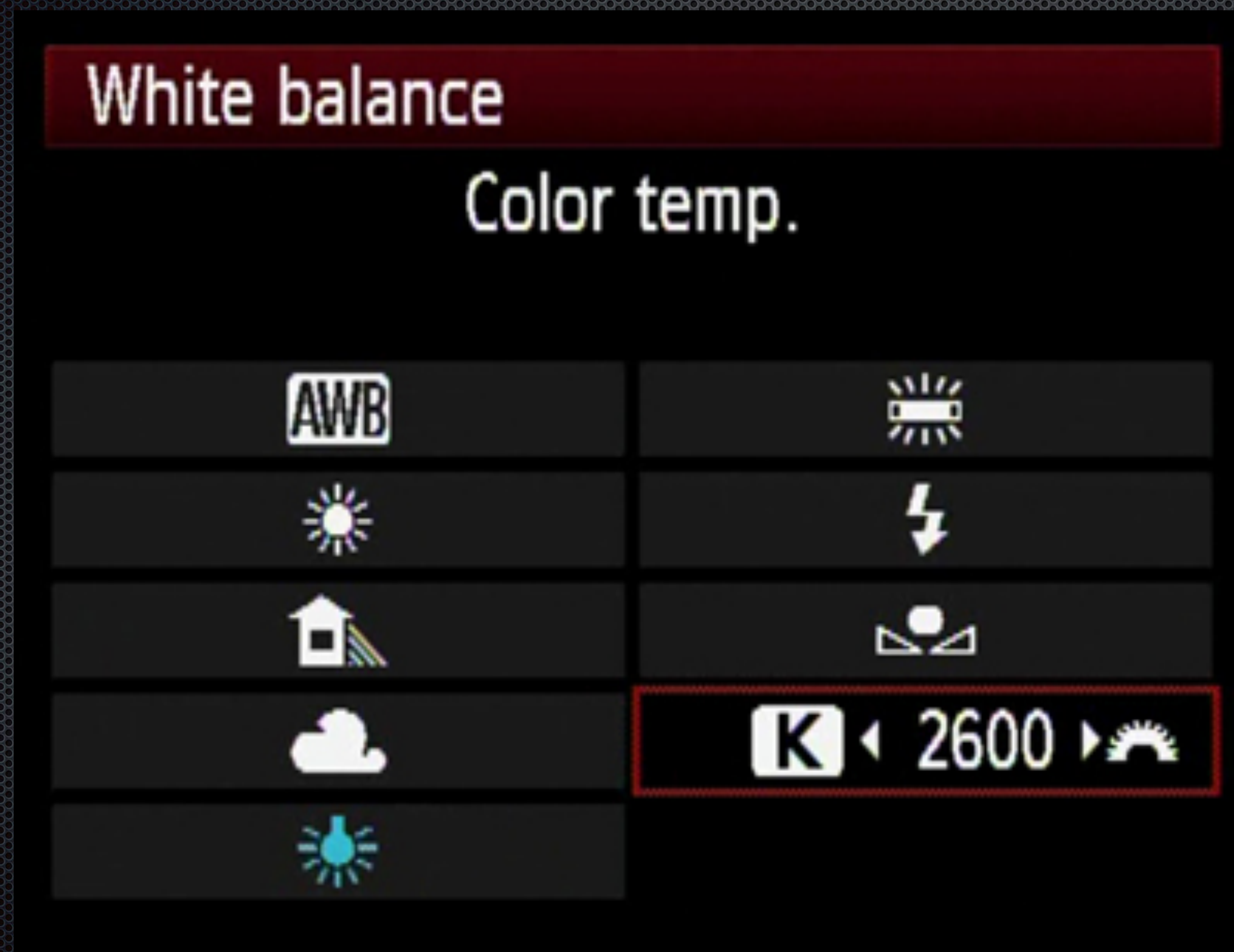
PRE Preset manual

**OK** OK



# Osnove delovanja kamere

- White balance (bela točka)





# Naloga

naloga1 : vsak posameznik v skladu z navodili obdela 5 fotografij in jih odda preko Google Drive v mapo Fotografija 1 in ustrezna smer študija in skupina (GMT ali GIK), ter tam ustvari svojo mapo in jo poimenuje:

## **1.vaja\_ime\_priimek**

Poimenovanje fotografij:

- kovano\_ime\_priimek.jpg
- LJ\_ime\_priimek.jpg
- pokrajina\_ime\_priimek.jpg
- portret\_ime\_priimek.jpg
- portret2\_ime\_priimek.jpg



# Naloga

naloga2: vsak posameznik v skladu z navodili posname 2 poljubni fotografiji (1 majhna, 1 velika globinska ostrina).

- vsak posameznik odda 2 fotografiji preko Google Drive v prej navedeno mapo:
- Poimenovanje 1.datoteke: ime\_priimek\_velika\_globinska\_ostrina.jpg
- Poimenovanje 2.datoteke: ime\_priimek\_majhna\_globinska\_ostrina.jpg