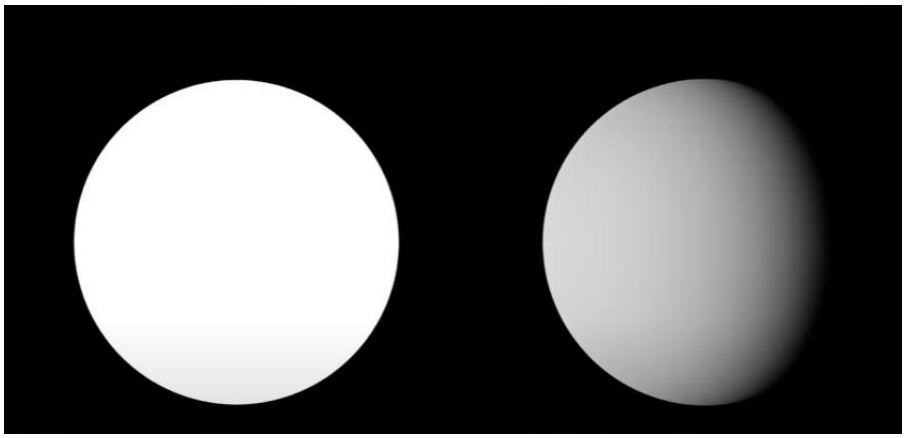
Lighting: Blender Guru Summary

There are 5 elements to think of when it comes to lightning:
1) direction
2) size
3) colour
4) readability
5) emphasis

Direction
Direction helps to create a shadow which helps to create a form. This can be observed when you flash a light around your face. That's why you need to choose the right direction to light your object to showcase the desirable form and not lose details.



Screenshot from Blender Guru's lightning tutorial part 1

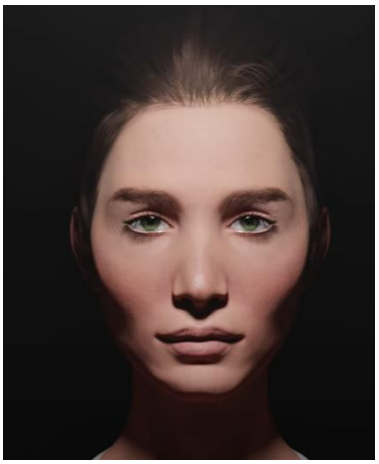
<u>A front light</u>
Can be good to show flat surfaces, and help focus on the picture, for example when you focus on a dress or tattoos or other 'flat surfaces. It is, however, bad for things with more form, such as faces, which will lead to losing volume.

Source https://www.aliexpress.com/item/33026884163.html

Source: screenshot from Lightning Tutorial part 1

Paramount/ butterfly lightning

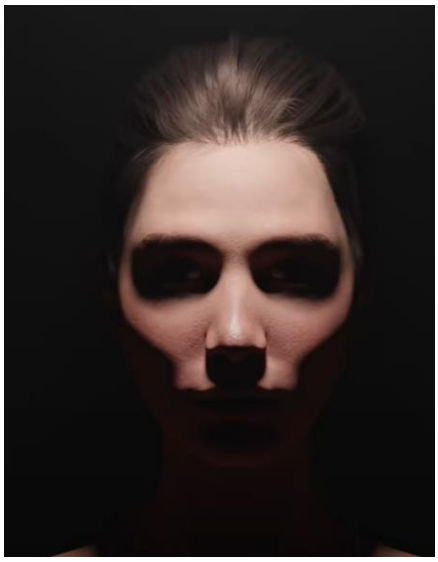
Light directed from top and front. This creates a small amount of shadows. It is often used in fashion shoots and head shots as it reveals flattering facial features, such as cheekbones.



Source: screenshot from Lightning Tutorial part 1

Overhead

The overhead light is bad for lighting a face, as you cannot see the eyes and makes it look skull-like. This lightning can be good if you are creating a composition with scary face.



Source: screenshot from Lightning Tutorial part 1 a

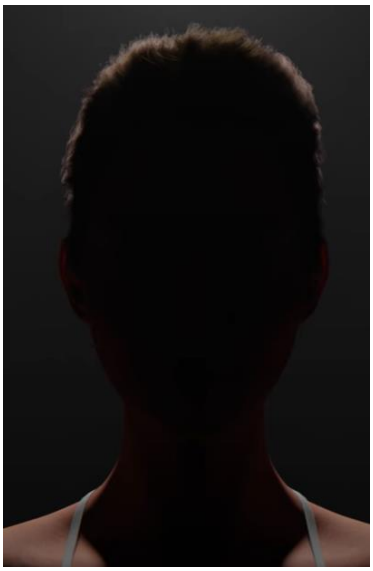
Source: https://www.nme.com/news/youtube-removes-trailer-nun-scary-2366873

This is alco called a 'Racoon light' because of its hidden eyes effect. While it may not be most suitable for portraits, it can be used in lightning the environment.

Top ad back

Another way of lighting, which is not recommended for flattering face lightning. However, it is very

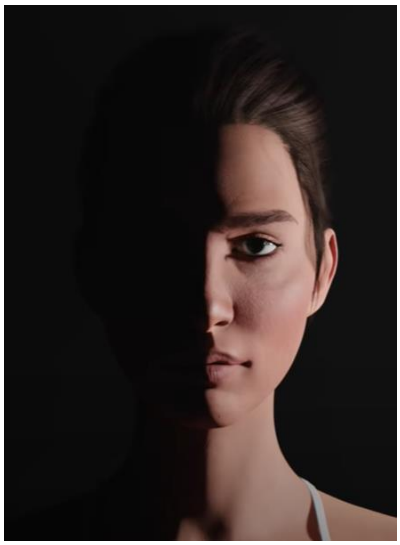
effective in creating a mysterious feeling because the shadow hides the face and if intended for this use, it is very effective.



Source: screenshot from Lightning Tutorial part 1

Split

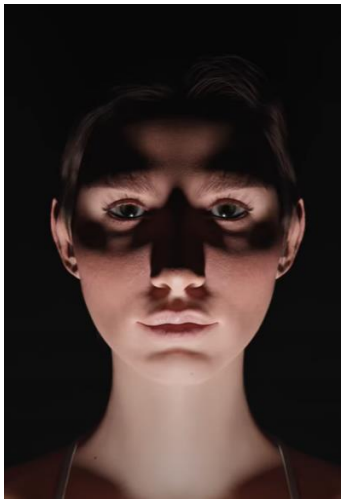
Split lightning is self-explanatory. Light is directed at half of the face and the other is hidden in shadow. This also evokes mystery.



Source: screenshot from Lightning Tutorial part 1

Torch

This is chieved from lightning from beneath the face. It looks quite unnatural, as the natural light on Earth comes from above (the Sun). However, it can be used in some cases as some light comes from below when the light bounces, for example, from snow or water- look at pictures of happy skiers. Light from below also shows a 'skull-like' appearance, which can be scary. It is often used for effects in scary movies.

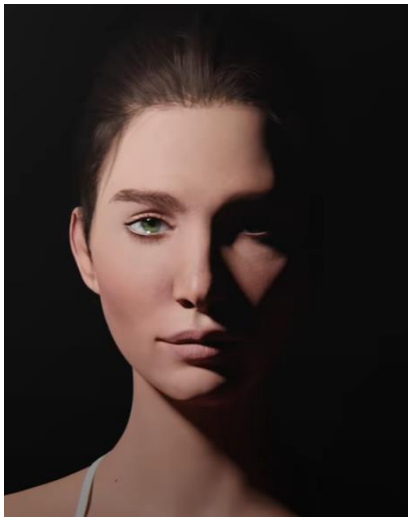


Source: screenshot from Lightning Tutorial part 1

Source: https://koa.com/blog/kid-friendly-spooky-campfire-stories/

Neutral light

The direction pf this light comes from the front and side. This type of light is used in movies a lot because it's a neutral way of presenting a character. It is fairly accurate when it presents a form. Also, 70% of paintings in the Louvre have this type of lightning. This light is sometimes referred to as ¾ light as it lights up ¾ of a face and the ¼ is in the shadow.



Source: screenshot from Lightning Tutorial part 1

Portrait of a Woman by Leonardo Da Vinci

In general, the light direction helps show what you try to say about a character and their situation or how you want to introduce them. Shadows are very helpful when it comes to lightning environment as it can tell you what **time of the day** it is.

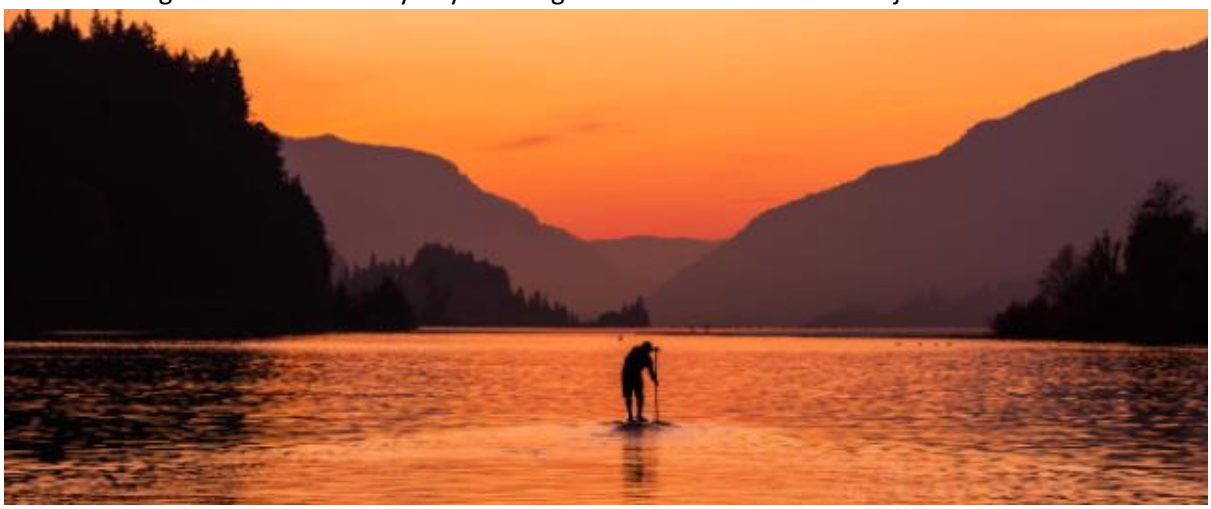
It is unusual to light environments from the top, as the sun (or the light) is perpendicular to the ground. This creates a flat, harsh light with little form. However, it can signify heat as this type of the lightning would be representative of for example desert environment.

Source: https://photos.com/featured/white-desert-sun-cinoby.html

Photographers often take photos at the ‘Golden hour’, when the sun creates pretty colours, casts shadows, and lights up the environment at an angle.

Source: https://www.photoblog.com/learn/golden-hour-photography/

You can also guide the viewer’s eye by creating shadows that frame the object of interest.

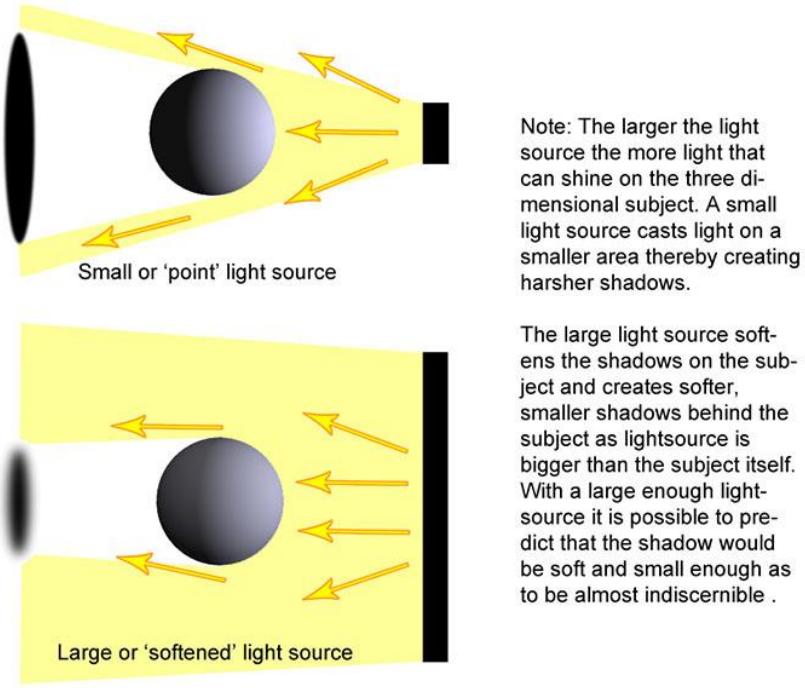


Source: https://www.digitaltrends.com/photography/when-is-golden-hour-and-what-is-it/

Size

Changing the size of the light is one of the most effective techniques at it gives different qualities to your shadow. It also affects how the light reflects off of your object.

Small Light source	Bigger light source
Sharp shadows	Softer shadows
Can help you see details because it creates bigger shadows when it's close (the light reaches less areas)	Creates a smooths shadow behind the object when it's close to it.
Small light sources are good for light vs dark effects which create harsh contrast.	When it's further from the object and the brightness is increased, the shadow is sharp. An example is the Sun shinning on the Earth which has smooth shadows.
It is not the best for lighting human faces as it emphasizes imperfections.	Good for lighting an overcast day. The clouds filter and hide distracting shapes, kind of like a big light source.
In the environment it can be used as the sun at noon on a bright day.	Light source that is too big makes everything look flat.
Can be useful in emphasizing emotion.	Using large source light on humans can give them a flat, doll-like quality because it 'removes' skin texture.



Source: https://www.limephoto.co.za/Macro_Lighting.html

The best way to light something is to use a combination of light sources and use a gradient, which will give off both, sharp and smooth shadows. For example, light and eye with a bogger light source and a smaller light source which creates a round highlight in the eye (small detail making it a little more realistic).

Characters are usually lit with large light sources to show beauty and the nice parts in general. However, if you want to present your character in an evil, scary, way, you highlight the details with a hard sun lamp.

In environments, in situations such as sunrise and sunsets, the air particles become a giant light box. This happens during the golden hour (1 hour after sunrise and 1 hour before sunset), which creates a smoother fall off and better exposure.

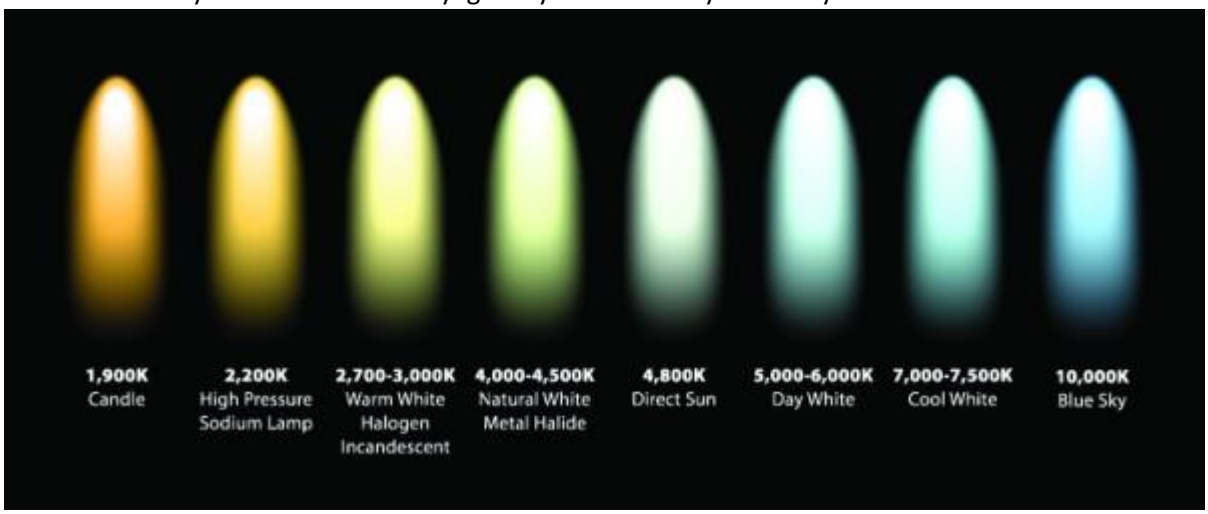
Colour

The colour of light drastically changes the feeling of the setting.
The colour mood connotations depend on people's culture and learned connection.

Colour can also be divided into 1) natural and 2) artificial.

<u>Natural</u>

Warm versus cool
Colour of the sun (warm) and sky (cold)
Kelvin Blackbody Scale: fire…sun…daylight sky…overcast sky…blue sky



Source: https://www.derunledlights.com/led-standard-terminology-color-temperature/

It is effective to use both 'warm' and 'cold' lights in your composition.

Source: https://pixabay.com/photos/lamp-warm-colors-night-light-4079655/

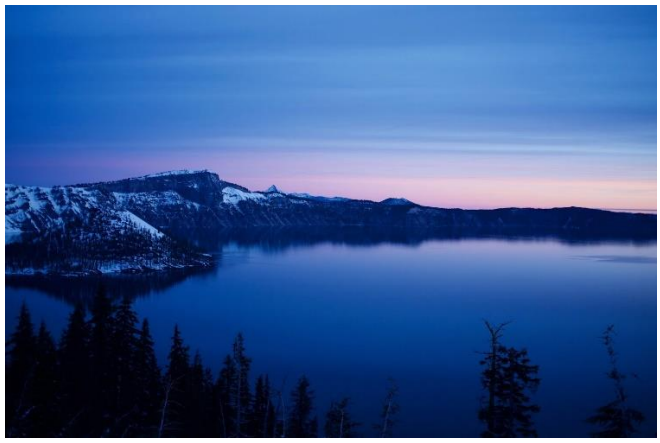
As in the example above, you can make the environment cold and direct the viewer's focus with the warm colour.

In architecture, a time period called the 'Blue hour' is used. It occurs an hour before the sunrise when there's no sun but it's still light outside. This allows to show both, exterior and interior in a photograph.
Here's a useful link for taking photographs during the Blue hour:
https://www.canva.com/learn/get-shooting-blue-hour/

Source: http://www.grantpitcher.co.za/architectural-photography/residential/the-blue-hour/

The Blue hour is also effective in lighting an environment with mountains, sea, city scape…

Source: https://en.wikipedia.org/wiki/Blue_hour



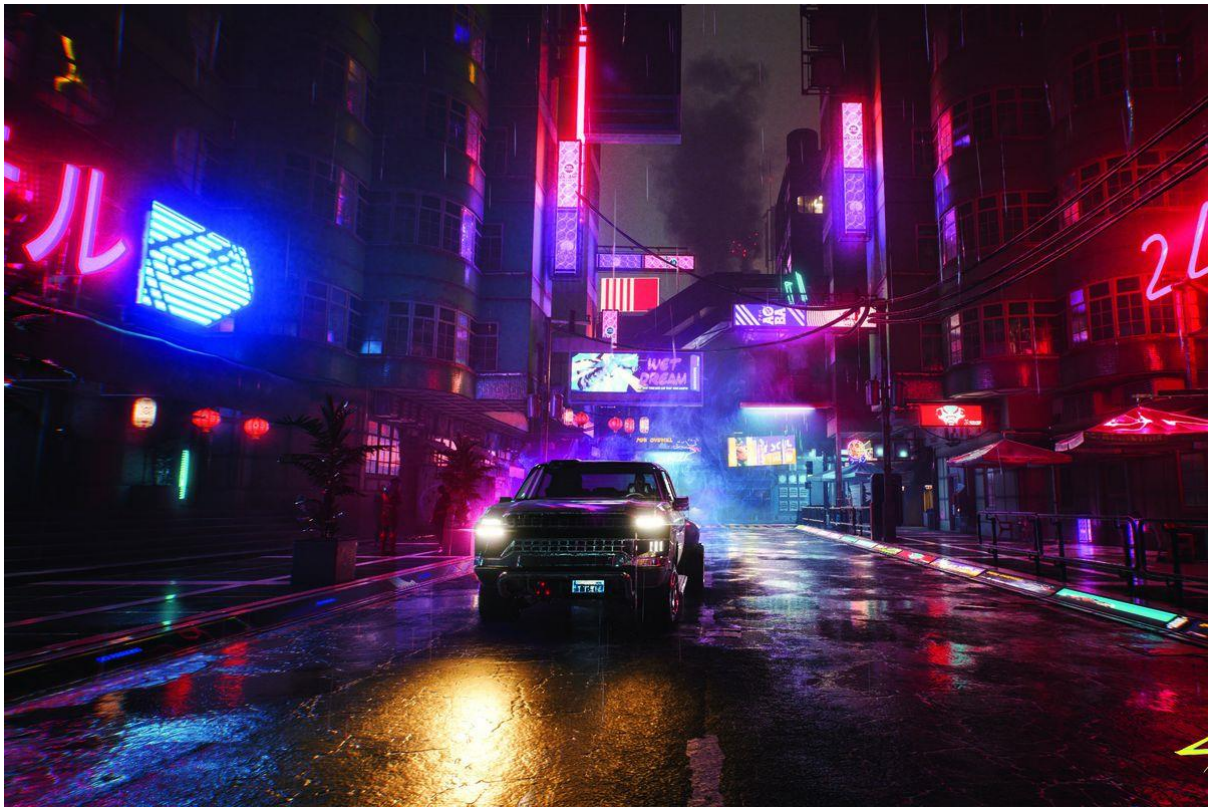
Source: Photo by Frank Marcheski

Artificial light

Signals location or symbolism. For example, neon lights often use colour blue and purple, colour of street lights can be electric orange. The man-made colours, aka not on Kelvin Blackbody Scale, present man-made environments, such as cities, futuristic civilisation, cyberpunk-like environment. In terms of symbolism, they are great for storytelling; they are more artistic since you can use colour-interpretation.

In this case, white is quiet a neutral colour. It is also good for showing textures.
Purple and green are good for city scenes.
Saturation of colours gives an artificial feel as the colours seem to be very strong, which is not in most cases, natural and such change feels deliberate.

Artificial light is basically not on the Kelvin scale, so other than orange, white and blue (and their different in-between shades).



Source: https://www.theverge.com/2021/3/19/22340232/cyberpunk-2077-1-2-patch-fixes-police-driving-dodging-issues

Readability

You have to make sure that when you light your object, it is readable. You have to think of:

Adequate lighting: well lit, not too little light but not too bright
Object separation: lit in a way that you see both the object and the background for context. You kind of carve out the object with *rim lighting*. This shows for example, dark hair separation from dark background


Source: https://www.diyphotography.net/learn-three-point-lighting-like-pro/

However, if you overuse rim light, the scene will look staged. Which is OK if you're going for a stylised scene, but not for realism.
Sometimes the lack of rim light helps with the mood or to represent real scenes. For example, in bleak weather inside of a car, no rim light helps with realism.

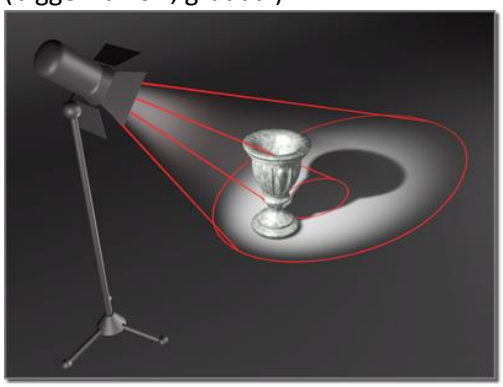
When you use too much light, you use detail.

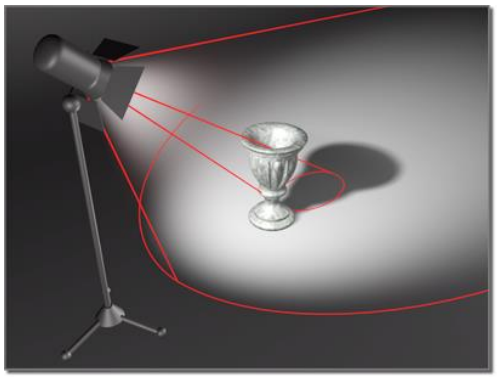
Fill light is usually larger, weaker light source, It is used as a compliment to the rim light, as seen in the example above, however it is not necessary in all cases.

In general, natural looking scenes are less readable but look more realistic. False colour helps objects to be more readable but also looks more stylised.

Emphasis

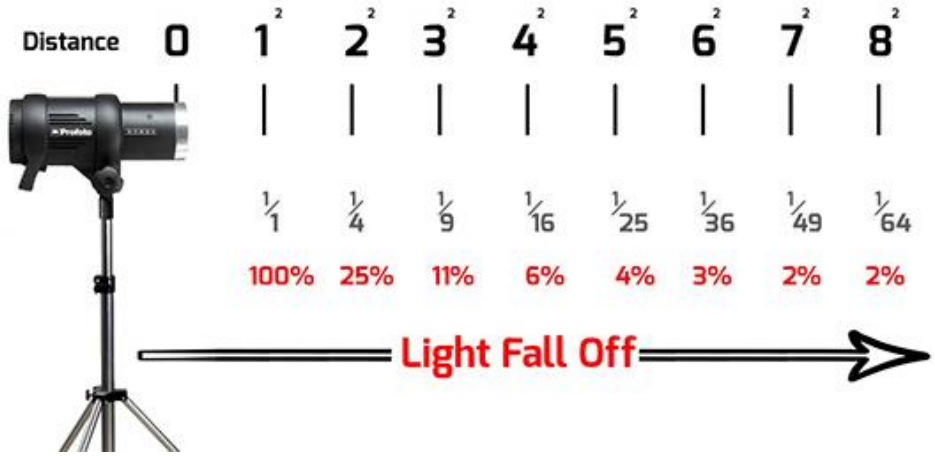
This is the guiding focal element in the image.
Light falloff is used, which means the light intensity decreases with the distance. Below is a difference in fall off between smaller light source (small falloff, sharp) and a larger light source (bigger fall off, gradual).





Source: https://knowledge.autodesk.com/support/3ds-max/learn-explore/caas/CloudHelp/cloudhelp/2019/ENU/3DSMax-Basics/files/GUID-CA4D9F98-AB97-4782-8CA7-D90AD1770D56-htm.html

Falloff has specific decrease:



Source: https://www.picturecorrect.com/tips/how-to-use-the-inverse-square-law-in-photography/

Falloff helps you direct where to look, eye attracted by the lightest part surrounded by gradual decrease. You can also use a sharp falloff, as eyes are also drawn by the contrast.
In face renders, you can shine the light and pun emphasis on the face, you can also put a dark background to bring it out even more by creating contrast.

You can also use shadows to tell a story beyond the object. Something that is not in the render but has a shadow (silhouette) of it in the final picture gives more context to the picture.

Resource: Blender Guru Lightning series (5 parts)
https://www.youtube.com/watch?v=cg1K_ZWB0Uw