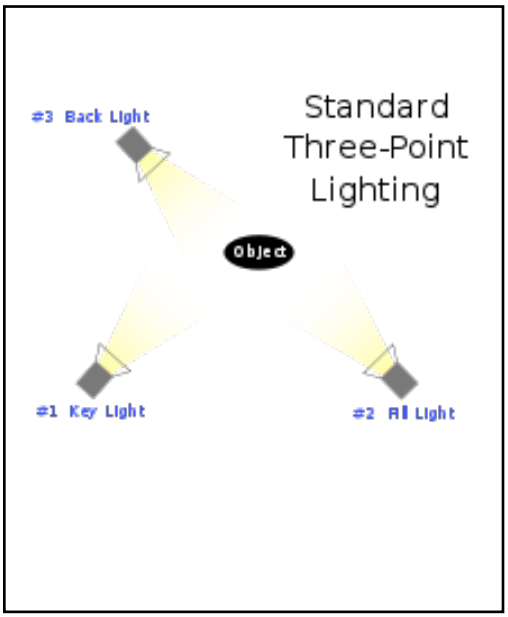
Lighting Techniques

Key Lighting



The key light is the first and usually most important light that a photographer, cinematographer, lighting cameraman, or other scene composer will use in a lighting setup. The purpose of the key light is to highlight the form and dimension of the subject. The key light is not a rigid requirement; omitting the key light can result in a silhouette effect. Many key lights may be placed in a scene to illuminate a moving subject at opportune moments.

The key light can be "hard" (focused) or "soft" (diffused), and depending on the desired setup can be placed at different angles relative to the subject. When part of the most common setup—three-point lighting—the key light is placed at a 30–60° angle (with the camera marking 0 degrees). In addition to the horizontal angle, the key light can be placed high or low producing different effects. The most common vertical position for the key light is at a 30° degree angle (i.e. slightly above the eye line; the nose should not cast a shadow on the lips).

A key light positioned low appears to distort the actor's features, since most natural or ambient light is normally overhead. A dramatic effect used in horror or comedy cinematography is a key light illuminating the face from below. A high key light will result in more prominent cheek bones and long nose shadows. Marlene Dietrich was famous for demanding that her key light be placed high.

Soft Light

Soft light refers to light that tends to "wrap" around objects, casting shadows with soft edges. The softness of the light depends mostly on the following two factors:

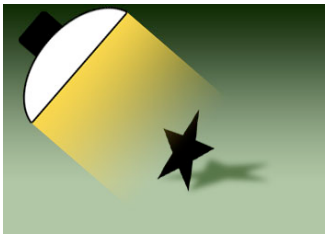
- Distance. The closer the light source, the softer it becomes.
- Size of light source. The larger the source, the softer it becomes.

The softness of a light source can also be determined by the angle between the illuminated object and the 'length' of the light source (the longest dimension that is perpendicular to the object being lit). The larger this angle is, the softer the light source.

Natural soft lighting from a sunrise in Temanggung Regency, Central Java, Indonesia

Soft light use is popular in cinematography and film.

- Cast shadow-less light.
- Fill lighting. Soft light can reduce shadows without creating additional shadows.
- Make a subject appear more beautiful or youthful through making wrinkles less visible.
- Supplement the lighting from practicals. This technique is used to perform "motivated" lighting, where all light in the scene appears to come from practical light sources in the scene. Soft light does not cast shadows that would be a giveaway of a supplementary light source.



Soft Light Examples

Hard light

Hard light sources cast shadows whose appearance of the shadow depends on the lighting instrument. For example, fresnel lights can be focused such that their shadows can be "cut" with crisp shadows. That is, the shadows produced will have 'harder' edges with less transition between illumination and shadow. The focused light will produce harder-edged shadows. Focusing a fresnel makes the rays of emitted light more parallel. The parallelism of these rays determines the quality of the shadows. For shadows with no transitional edge/gradient, a point light source is required.

When hitting a textured surface at an angle, hard light will accentuate the textures and details in an object.

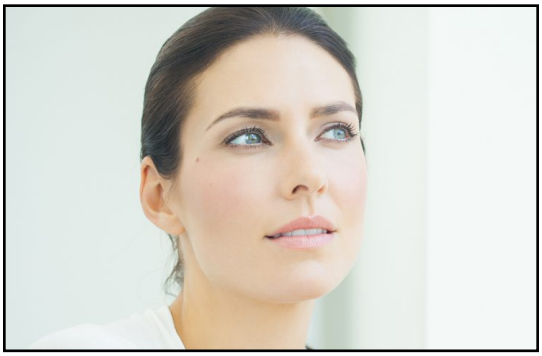
High-Key Lighting

High-key lighting is a style of lighting for film, television, or photography that aims to reduce the lighting ratio present in the scene. This was originally done partly for technological reasons, since early film and television did not deal well with high contrast ratios, but now is used to suggest an upbeat mood. It is often used in sitcoms and comedies. High-key lighting is usually quite homogeneous and free from dark shadows. The terminology comes from the key light (main light).

In the 1950s and 1960s, high-key lighting was achieved through multiple light sources lighting a scene—usually using three fixtures per person (left, right, and central) —which resulted in a uniform lighting pattern with very little modeling. Nowadays, multiple hot light sources are substituted by much more efficient fluorescent soft lights which provide a similar effect.

The advantage to high-key lighting is that it doesn't require adjustment for each scene which allows the production to complete the shooting in hours instead of days. The primary drawback is that high-key lighting fails to add meaning or drama by lighting certain parts more prominently than others.

Most recently, shows with bigger budgets moved away from high-key lighting by using lighting set-ups different from the standard three-point lighting. Part of the reason for this is the advent of new lighting fixtures which are easier to use and quicker to set up. Another reason is the growing sophistication of the audience for TV programs and the need to differentiate.



The term "high-key" has found its way from cinema into more widespread usage, for example referring to an event that requires much organization or is subject to a great deal of publicity.

Low-Key Lighting

Low-key lighting is a style of lighting for photography, film or television. It is a necessary element in creating a chiaroscuro effect. Traditional photographic lighting, three-point lighting uses a key light, a fill light, and aback light for illumination. Low-key lighting often uses only one key light, optionally controlled with a fill light or a simple reflector.

Low key lighting

High-key lighting from *The Godfather*

Low key light accentuates the contours of an object by throwing areas into shade while a fill light or reflector may illuminate the shadow areas to control contrast. The relative strength of key-to-fill, known as the lighting ratio, can be measured using a light meter. Low key lighting has a higher lighting ratio, e.g. 8:1, than high-key lighting, which can approach 1:1.

The term "low key" is used in cinematography to refer to any scene with a high lighting ratio, especially if there is a predominance of shadowy areas. It tends to heighten the sense of alienation felt by the viewer, hence is commonly used in film noir and horror genres.

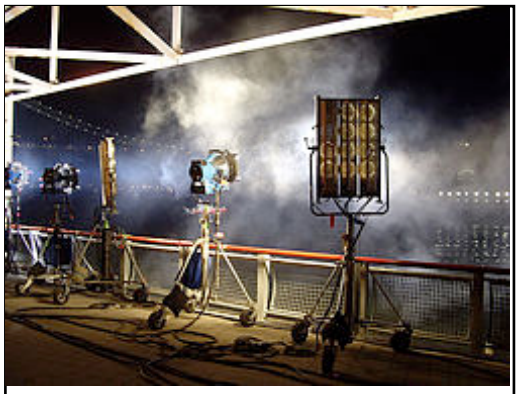
Background Lighting

The background light is used to illuminate the background

area of a set. The background light will also provide separation between the subject and the background. In the standard 4-point lighting setup, the background light is placed last and is usually placed directly behind the subject and pointed at the background.

In film, the background light is usually of lower intensity. More than one light could be used to light uniformly a background or alternatively to highlight points of interest.

In video and television, the background light is usually of similar intensity to the key light because video cameras are less capable of handling high-contrast ratios. In order to provide much needed separation between subject and background, the background light will have a color filter, blue for example, which will make the foreground pop up.



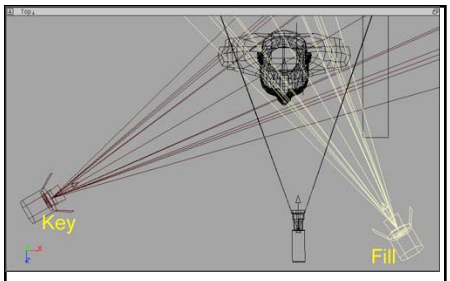
Background lighting on the New York City set of *I Am Legend*.

No background lighting Background lighting added

Fill Lighting

In television, film, stage, or photographic lighting, a fill light (often simply fill) may be used to reduce the contrast of a scene and provide some illumination for the areas of the image that are in shadow. A common lighting setup places the fill light on the lens axis, roughly perpendicular to the key light.

The fill light is often softer and, by definition, less intense than the key light. The ratio between light and shadow depends on the desired effect. For example, a fill light that is a small fraction of the power of the key light will produce very high-contrast or low-key lighting, while filling with half or more of the key light power will produce a high key, low-contrast tone.



How to use fill lighting (from 3dRender.com)

In cases where the fill light is desired to be darker than what is available without artificial means, a flag or frame may be used to block ambient light and thereby provide what is called negative fill.

An alternative to using a direct light source as a fill is to re-direct or "bounce" the key light towards the subject by using a reflector.

No fill lighting Fill lighting added

Cameo Lighting

Cameo lighting in film is a spotlight that accentuates a single

person in a scene. It creates an 'angelic' shot, such as one where God is shining down and a light shines down onto this person.

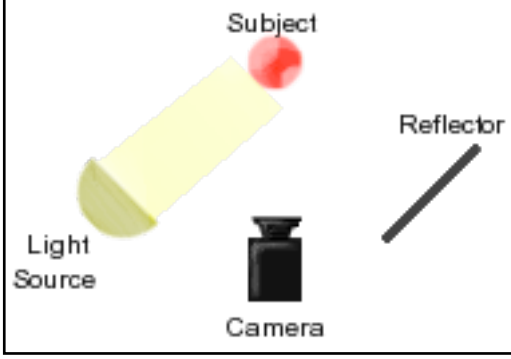
Cameo lighting derives its name from the art form in which a light relief figure is set against a darker background. It is often achieved by using barn-doored spotlights. It helps focus on the subject and not its environment. A problem with cameo lighting is that it can lead to color distortion and noise in the darkest areas.

Cameo lighting (from freedomclubtheshow.com)

Rembrandt Lighting

Rembrandt lighting is a lighting technique that is used in studio portrait photography. It can be achieved using one light and a reflector, or two lights, and is popular because it is capable of producing images which appear both natural and compelling with a minimum of equipment. Rembrandt lighting is characterized by an illuminated triangle under the eye of the subject, on the less illuminated side of the face. It is named for the Dutch painter Rembrandt, who often used this type of lighting.

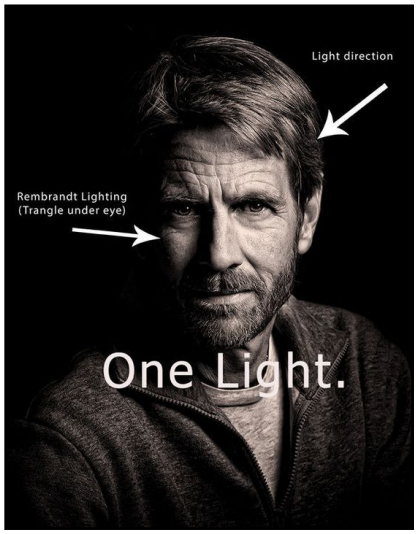
The typical Rembrandt lighting setup



Normally, the key light is placed high and to one side at the front, and the fill light or a reflector is placed half-height and on the other side at the front, set to about half the power of the key light, with the subject, if facing at an angle to the camera, with the key light illuminating the far side of the face.

The key in Rembrandt lighting is creating the triangle or diamond shape of light underneath the eye. One side of the face is lit well from the main light source while the other side of the face uses the interaction of shadows and light, also known as chiaroscuro, to create this geometric form on the face.

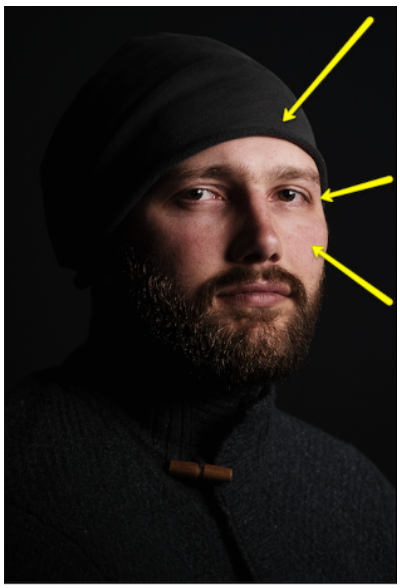
The triangle should be no longer than the nose and no wider than the eye. This technique may be achieved subtly or very dramatically by altering the distance between subject and lights and relative strengths of main and fill lights.



(Info and images largely taken from Wikipedia)

Playing with the Angles

Side Lighting



Short Side Lighting

Broad Side Lighting

Backlighting

Rim/Kicker Lighting