

**F**or many beginners, mixing colors seems a very difficult discipline. This is not compounded by the fact that there are currently an inexhaustible number of color hues on the market and it is difficult to choose which colors are most suitable for your own needs. At first glance, mixing colors itself can seem very complicated. However, it is necessary to realize in the first place that mixing right hue is only one part of the problem. If I don't know exactly what color I want to mix, the actual color mixing can't turn out successfully. In order to be able to get a concrete idea of the color that I need at the moment, I need to know the basic properties of colors. The final appearance of a certain hue is influenced by many factors. The most essential of these is the play of lights and shadows. Therefore, before we start mixing all sorts of hues and values, we will explain the basic rules of shading. How light falling on specific objects affects their appearance, the distribution of lights and shadows and so on.

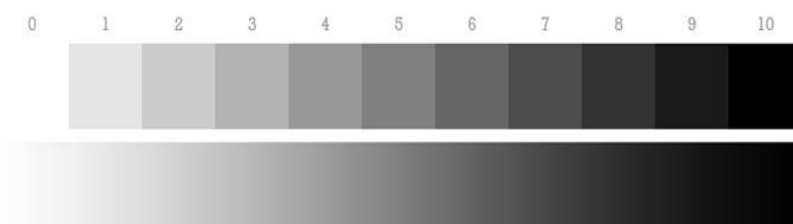
## 1.1 BASICS OF SHADING

The quality and quantity of falling light on a particular object affects its final appearance. As you probably know, there are many ways to illuminate a motif that will be painted. You can use lighting from the side (lateral), from below, or zenith lighting, etc. The choice of each type of lighting depends on what the artist wants to achieve in the resulting painting. Colorists, for example, use frontal lighting with minimal shadows in the painting. However, in classical still life painting, lateral frontal lighting is preferred in most cases, which is best suited for

capturing the volume of bodies. For simplicity, let's omit color from our thoughts and focus on the distribution of lights and shadows. All the shading rules we will now explain can be applied to any object or shape in different variations. Each color has a certain tonality or value in the black and white spectrum. Some colors are light, and others have a darker color. Each artist has values available for their work, which can be easily sorted to a scale of several grays, as shown in the picture

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### VALUE SCALE



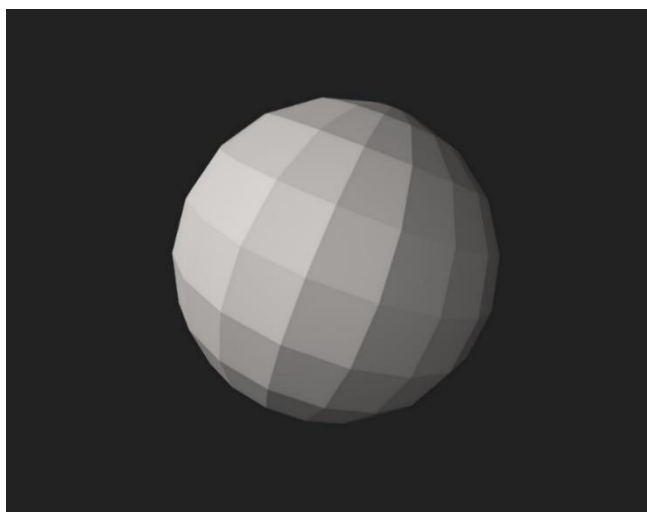
Value is defined as how light or dark something is and is used in drawing to depict light and shadow.

**B**ecause every change in the inclination of the plane to the light source is also reflected in a change in the value, we have a theoretically infinite number of surfaces with different tonality in the real world. In practice, however, it is necessary to simplify these gradations and the artist usually works with a limited range of tonal values. In our case, for simplicity and clarity, we will limit ourselves to 10 specific values. 5 for the light area 5 for the shaded areas We will explain everything on an ideally curved surface, eggs and a ball. First, however, to make it easier to understand our sphere, we divide it into several basic planes and create a polygon. Each of these planes has a different position relative to the light source and thus reflects more or less light.

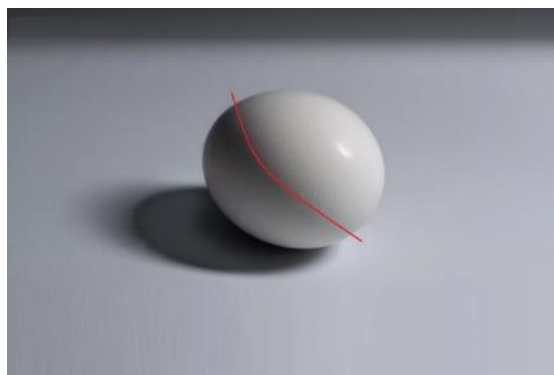
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### POLYGONAL SPHERE

During shading, remember the basic rule, changing the inclination of the plane from the light source means changing the value! Because it is a curved surface, the individual planes of the illuminated polygon are differently inclined relative to the light source and thus have different tonal values. We now know how the tonality of a plane is affected. Next, we will explain all the changes on a smooth object, in our case on a white egg, which is illuminated from a half-profile, so that its volume and shape stand out.



Light coming from one particular direction divides a generally illuminated body into an area of light and an area of shadow. Furthermore, shadows can be further divided into shadows of its own object and a cast shadow. The shape of the boundary dividing the object into areas of light and shadow, called the terminator, depends on the direction of the light source on the shape of the object and its curvature. In our case, the boundary appears as an ellipse.



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### THE TERMINATOR

The terminator, or 'bedbug line', is the area where the form transitions from light into shadow. It occurs where the light rays from the source are tangent to the edge of the form. If the source is soft and indirect and the object is slightly curved the transition from light to shadow at the terminator will be more gradual. The form shadow begins just beyond the terminator.

## 1.2 LIGHT AND SHADOW

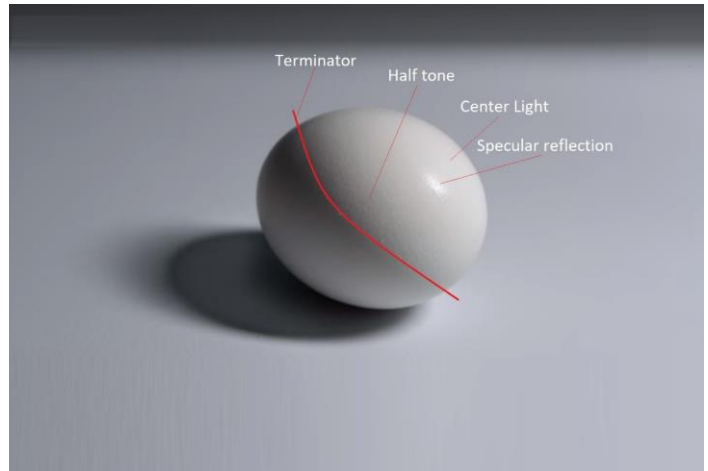
In this chapter we will explain the tonal changes taking place in the illuminated part of our egg. Because it is a curved surface, the individual planes of the illuminated object are inclined differently relative to the light source.

### ILLUMINATED SIDE

For now, forget about the specular reflection that has the lightest value. In a place of center light, the value of an area perpendicular to the light source will be the brightest.

At the point of half tone, the surface plane is deviated from the light source, so it receives less light and has a darker value compared to the full illumination plane.

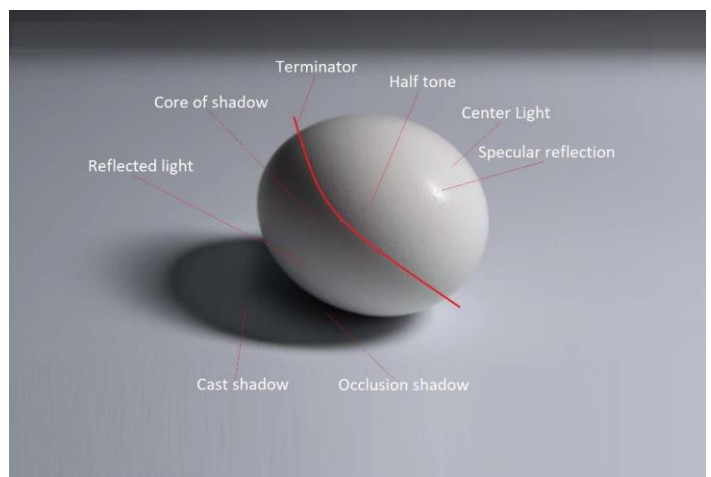
The lightest value on an object is, the specular reflection of a light source.



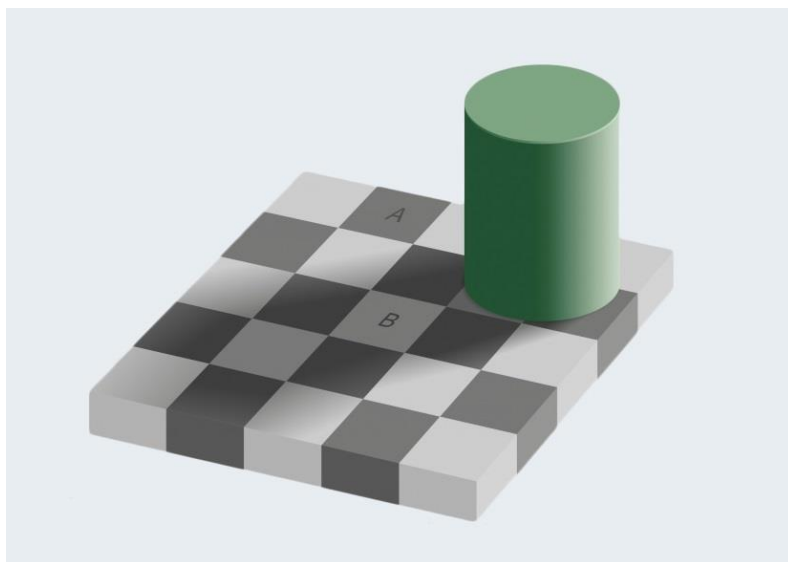
The area in the shadow is divided into a cast shadow and the body shadow itself. Both parts also consist of several values. This fact is mainly influenced by the reflected light and the reflectivity of the object itself.

Without reflected light, the shadow area would theoretically have only one dark value, however, the presence of reflected light causes tonal changes in the shadow as well. Reflected light from the tabletop, illuminates the area in the shade. Therefore, a so-called shadow core is formed here, which obviously has a darker value than the rest of the shadow. Also, the cast shadow has several values. The darkest part of cast shadow is near where the object touches the tabletop

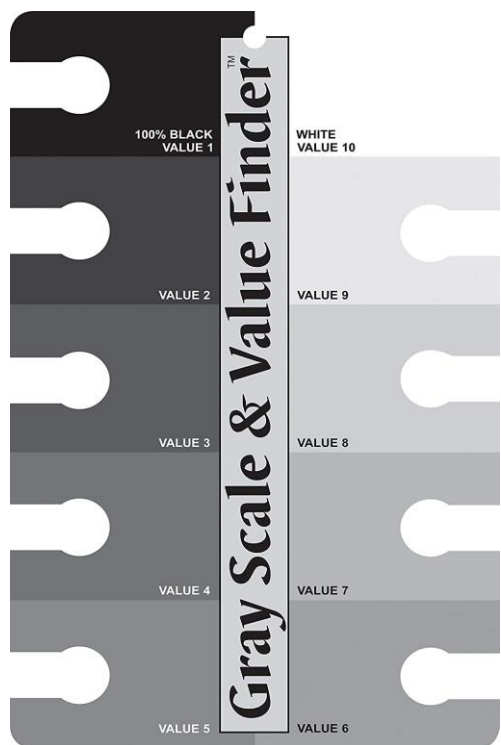
### SHADOW SIDE



When determining values, don't be fooled by your own way of perceiving; if you compare the square marked with index A with the square in shadow B, at first glance, square B seems lighter than at point A. In fact, both squares are equally dark / light. Point A seems darker as you compare its tonality to the light squares that surround it. On the contrary, you compare the tonality of point B with the darker surroundings



*Nothing in the light is as dark as in the shadow, and nothing in the shadow is as light as in the light. Always follow the direction of the light and compare the values. A frequently used trick for estimating the values is squinting. Small details disappear when looking at the object with your eyes half closed.*



Judging values is hard because surrounding values change our perception of the value we're trying to judge. In realism, value and tones are the foundation that color and composition sit upon. When you keep a tight rein on your values, you will have far fewer struggles with colors, and even your sense of composition will improve. Be careful when determining the values and keep in mind that there is nothing in isolation in the painting and the values affect each other. This rule also applies to the color, which we will talk about more in the next chapters.