

Seeing the Light



Photo

Graph

Light

Writing

Four Characteristics of Light



Four Characteristics of Light



- Quantity (Brightness/Luminance)

Four Characteristics of Light



- Quantity (Brightness/Luminance)
- Quality/Texture (Direct or diffuse, hard or soft)

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- Color

Four Characteristics of Light



- Quantity (Brightness/Luminance)
- Quality/Texture (Direct or diffuse, hard or soft)
- Color
- Direction (front, side, back)

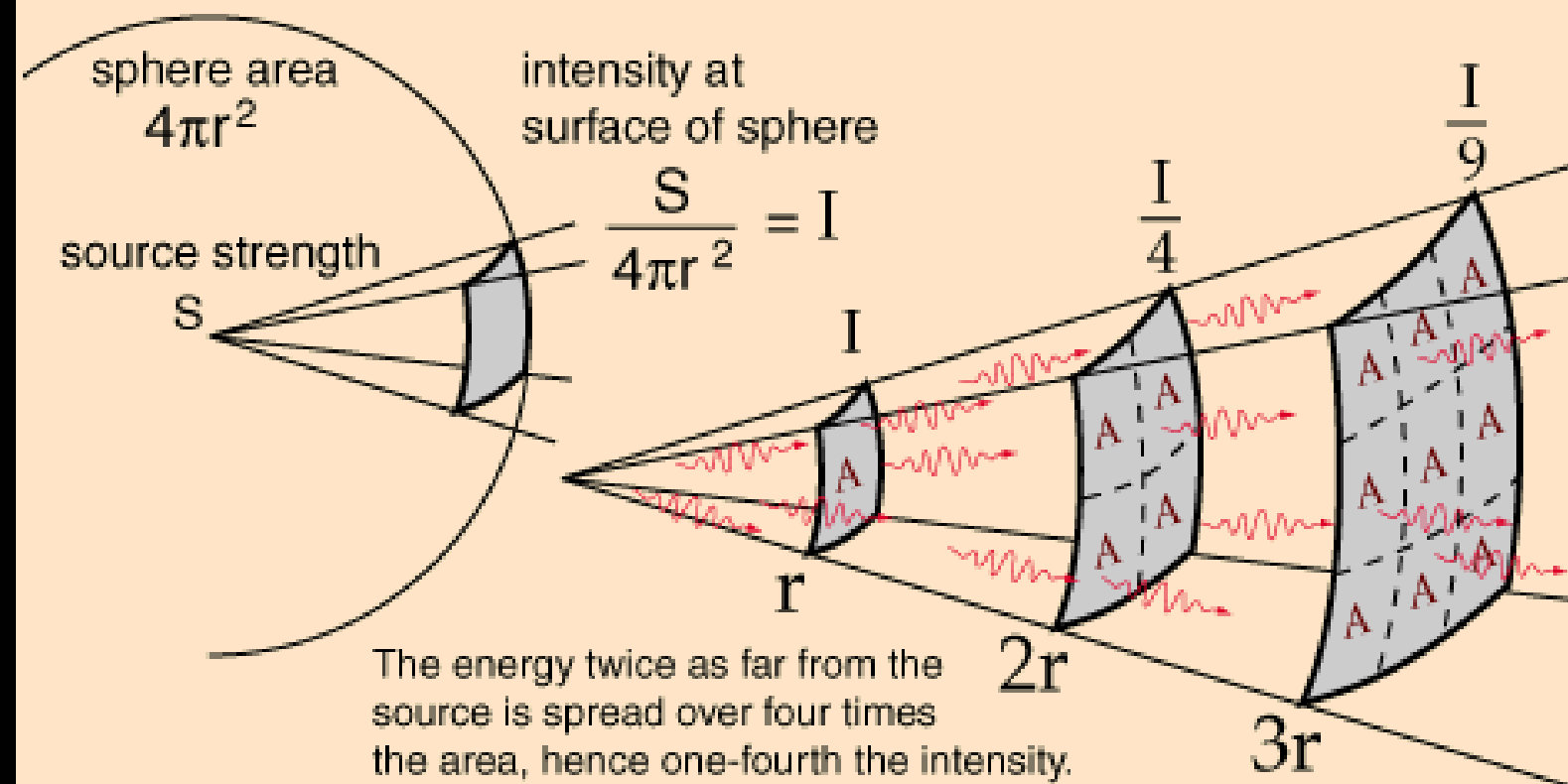
Quantity: Amount of Light

Inverse Square Law, Light

As one of the fields which obey the general [inverse square law](#), the [light](#) from a point source can be put in the form

$$E = \frac{I}{r^2}$$

where E is called [illuminance](#) and I is called [pointance](#).



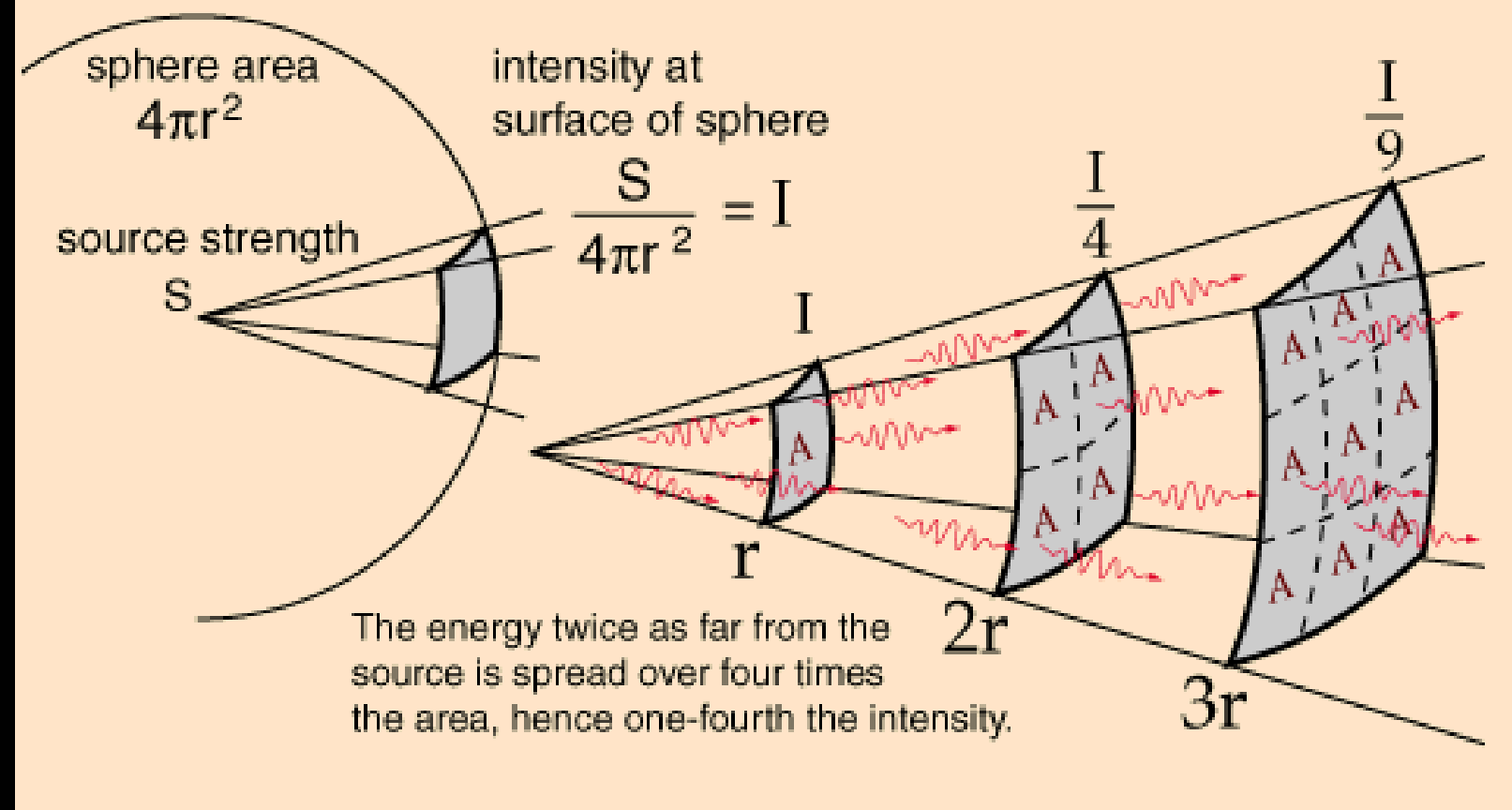
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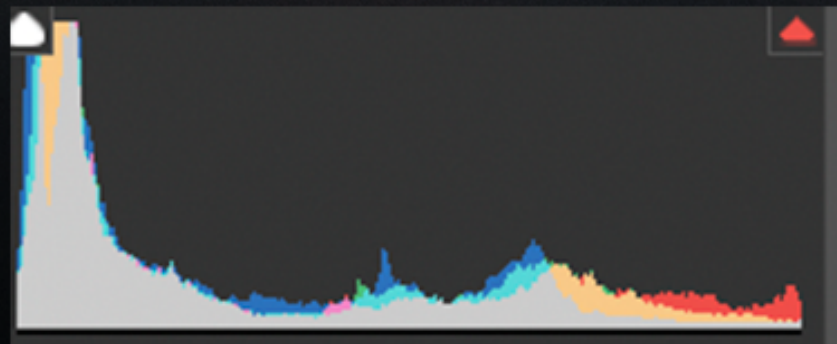
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(Light gets weaker as it travels from its source)

Too Little Light

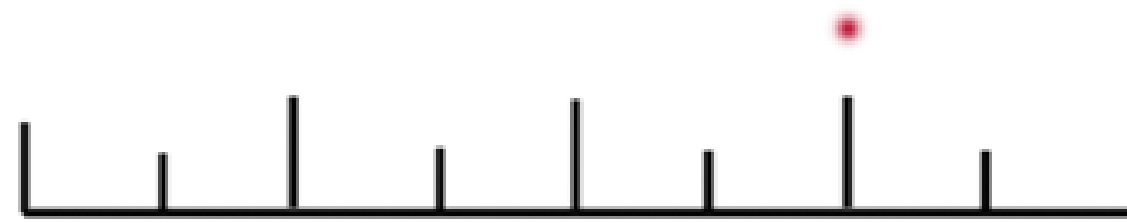
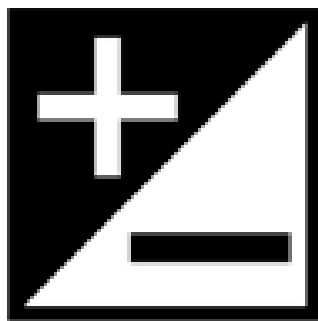


Histogram bunched on left

If not enough light...

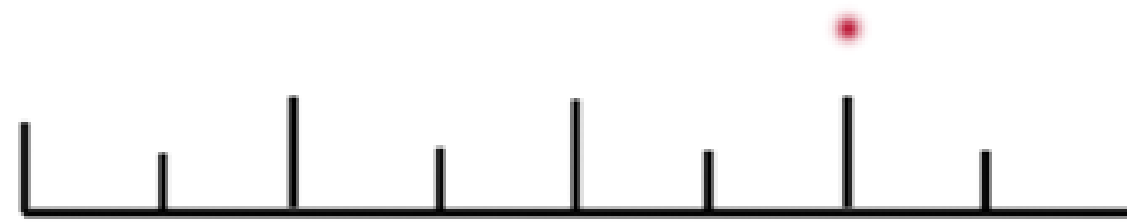
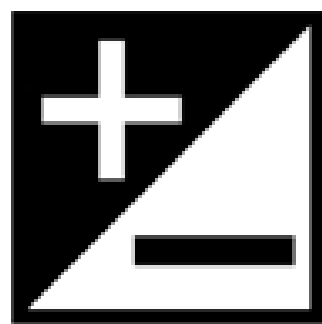
If not enough light...

- Adjust exposure (Exposure Compensation)



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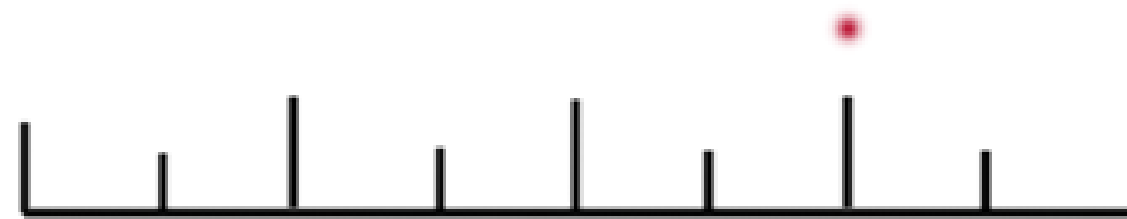
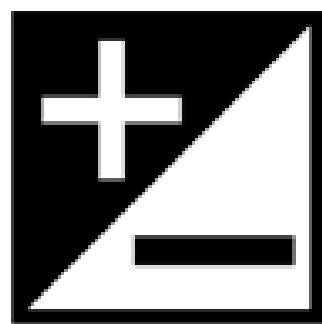
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- Add light (flash, reflectors)

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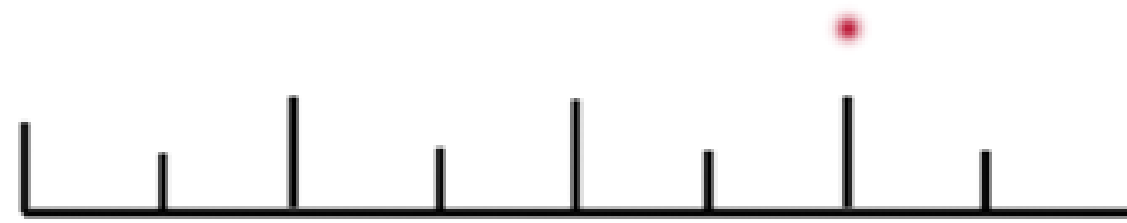
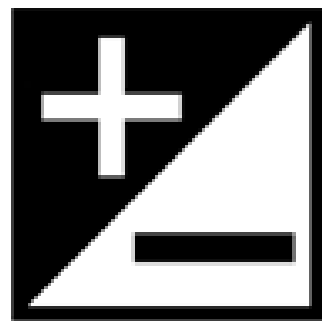
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- Add light (flash, reflectors)
- Get closer to the light (Move light or subject)

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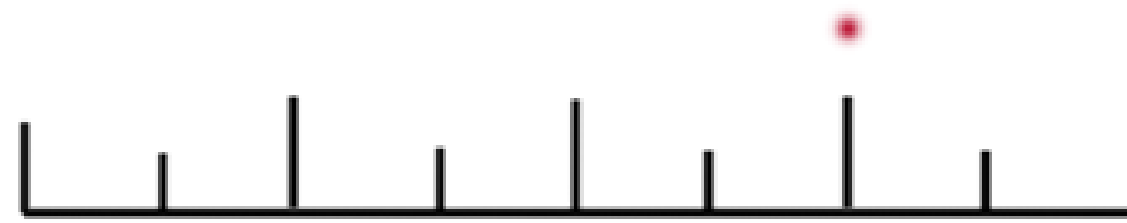
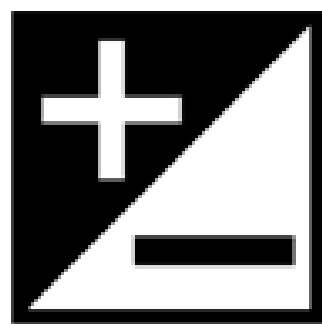
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- Come back another time

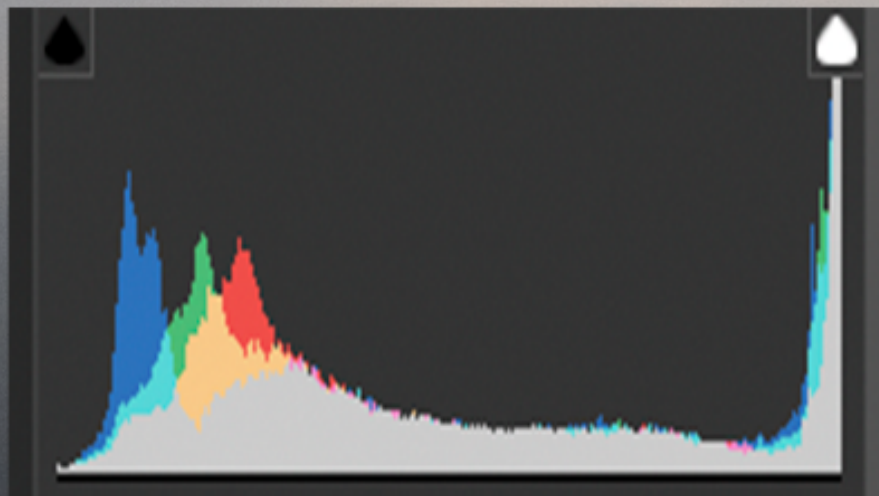
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- Come back another time
- Fix with editing (but it may not always work)

Too Much Light

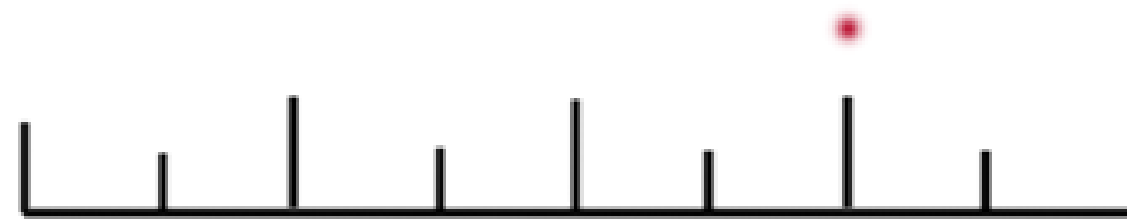
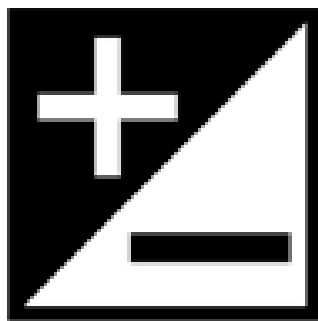


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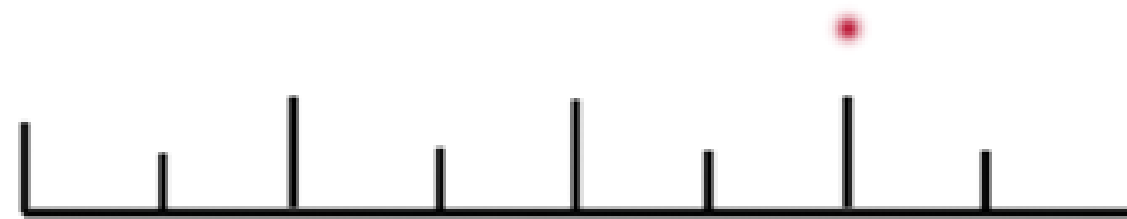
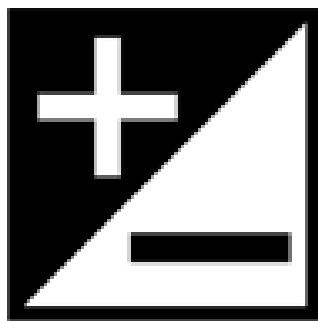
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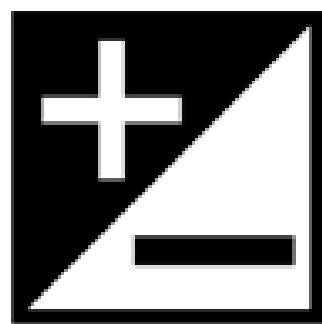
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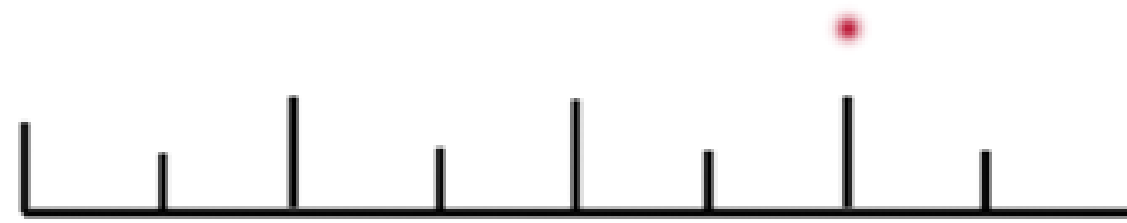
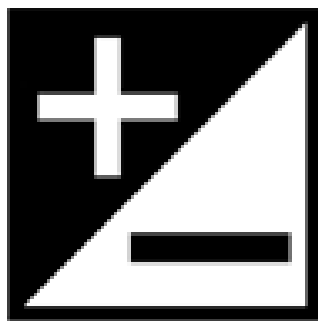
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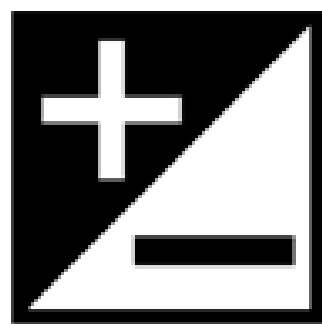
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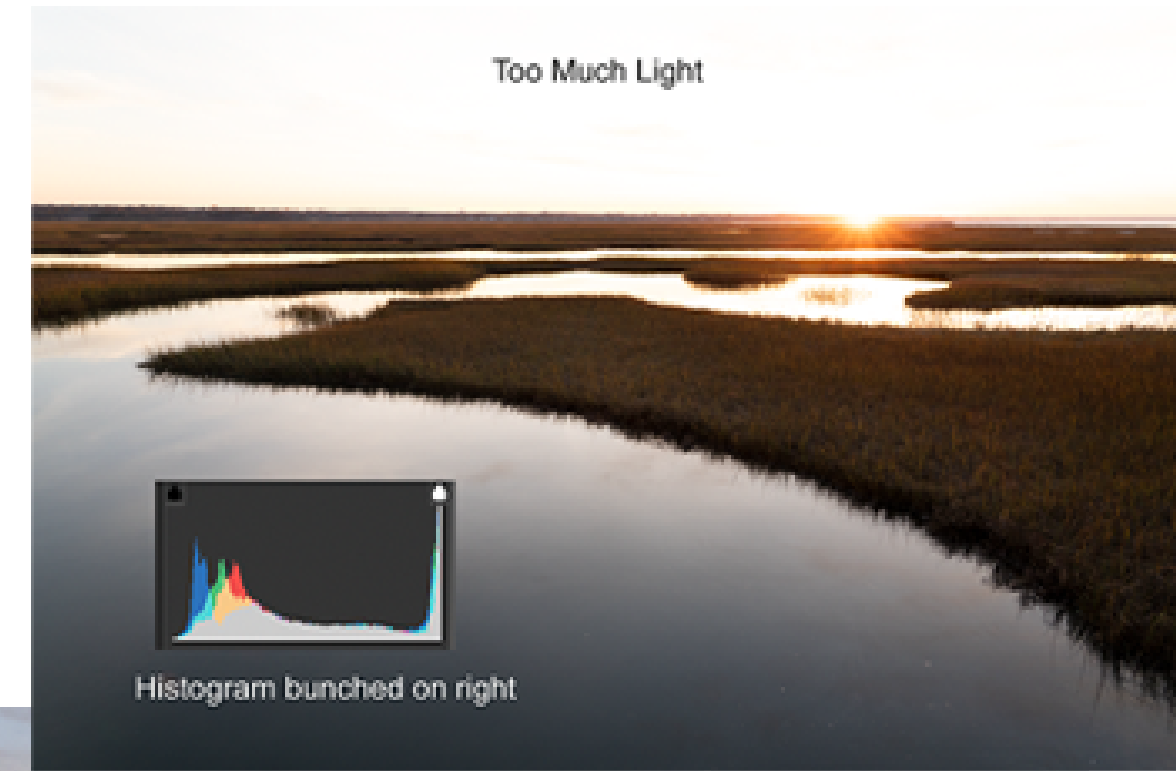
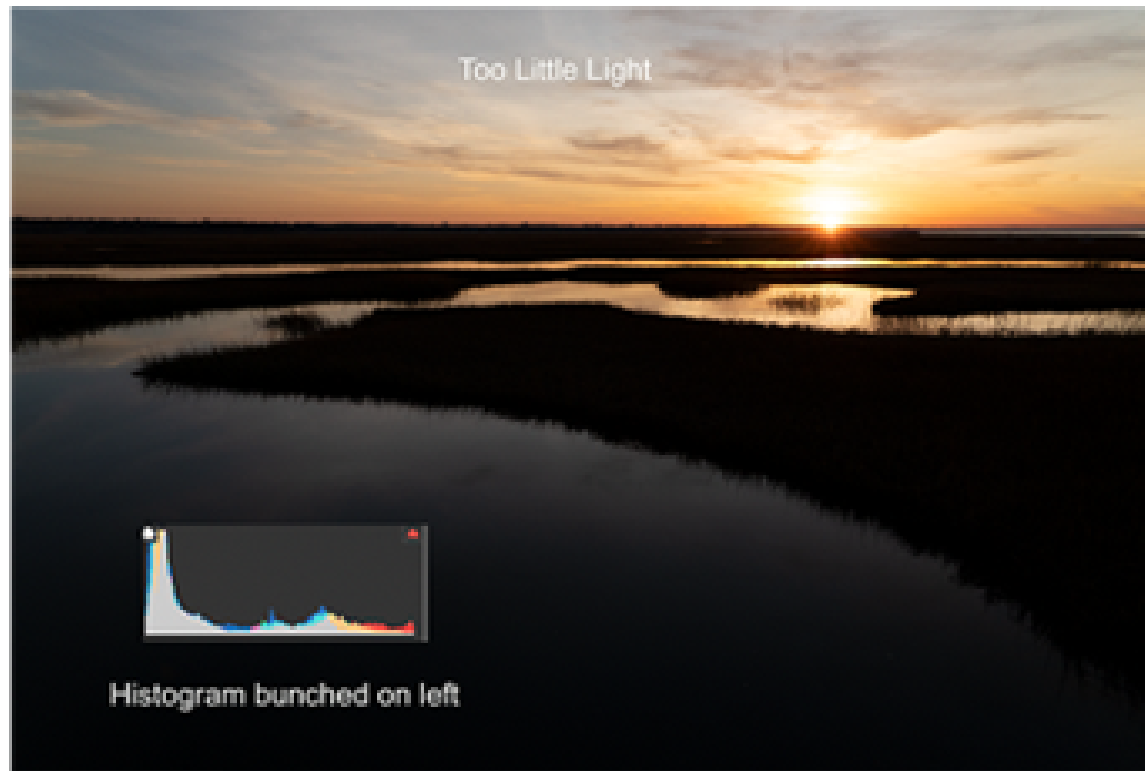
- Move away from the light (Move light or subject)
- Come back another time

If too much light...

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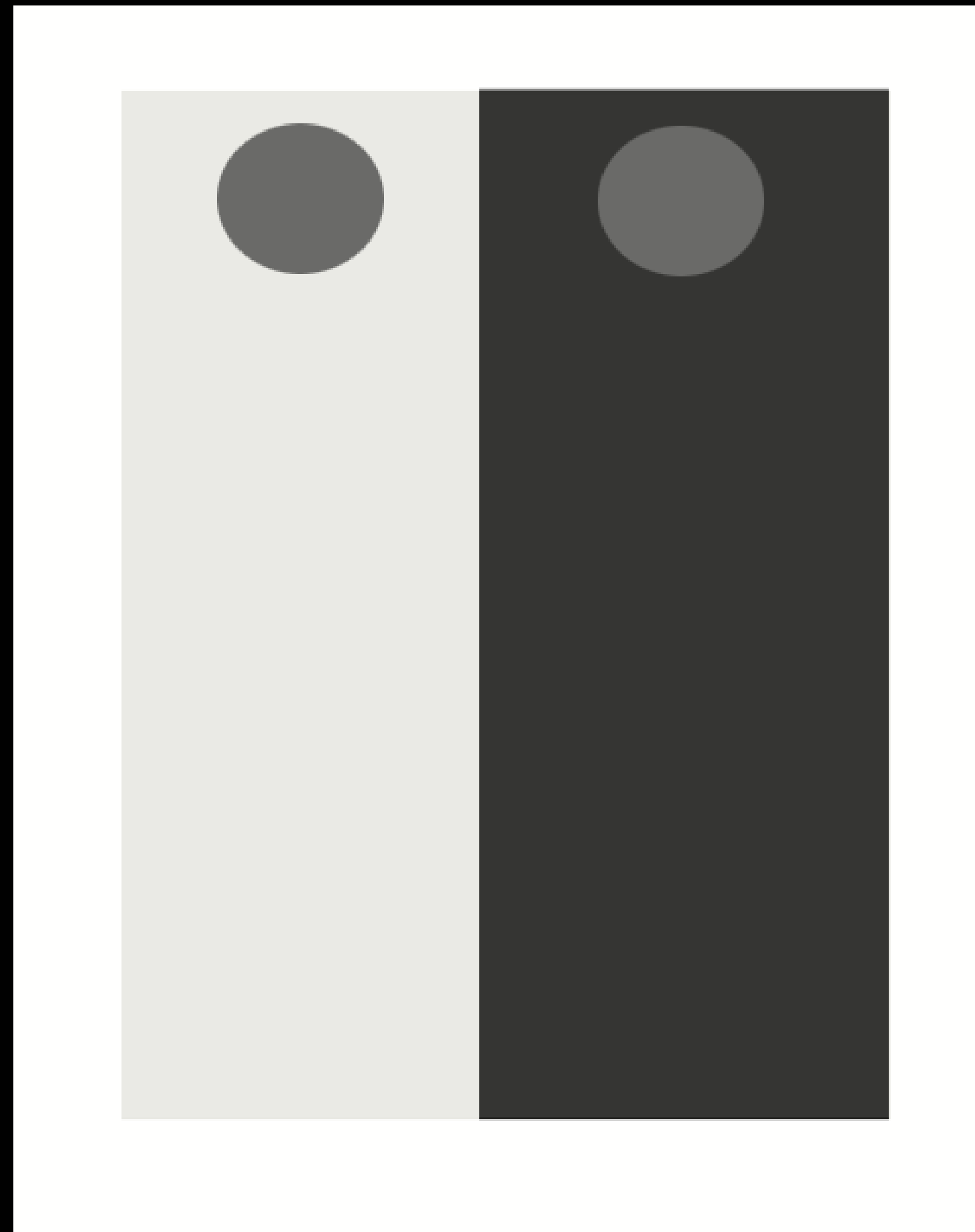


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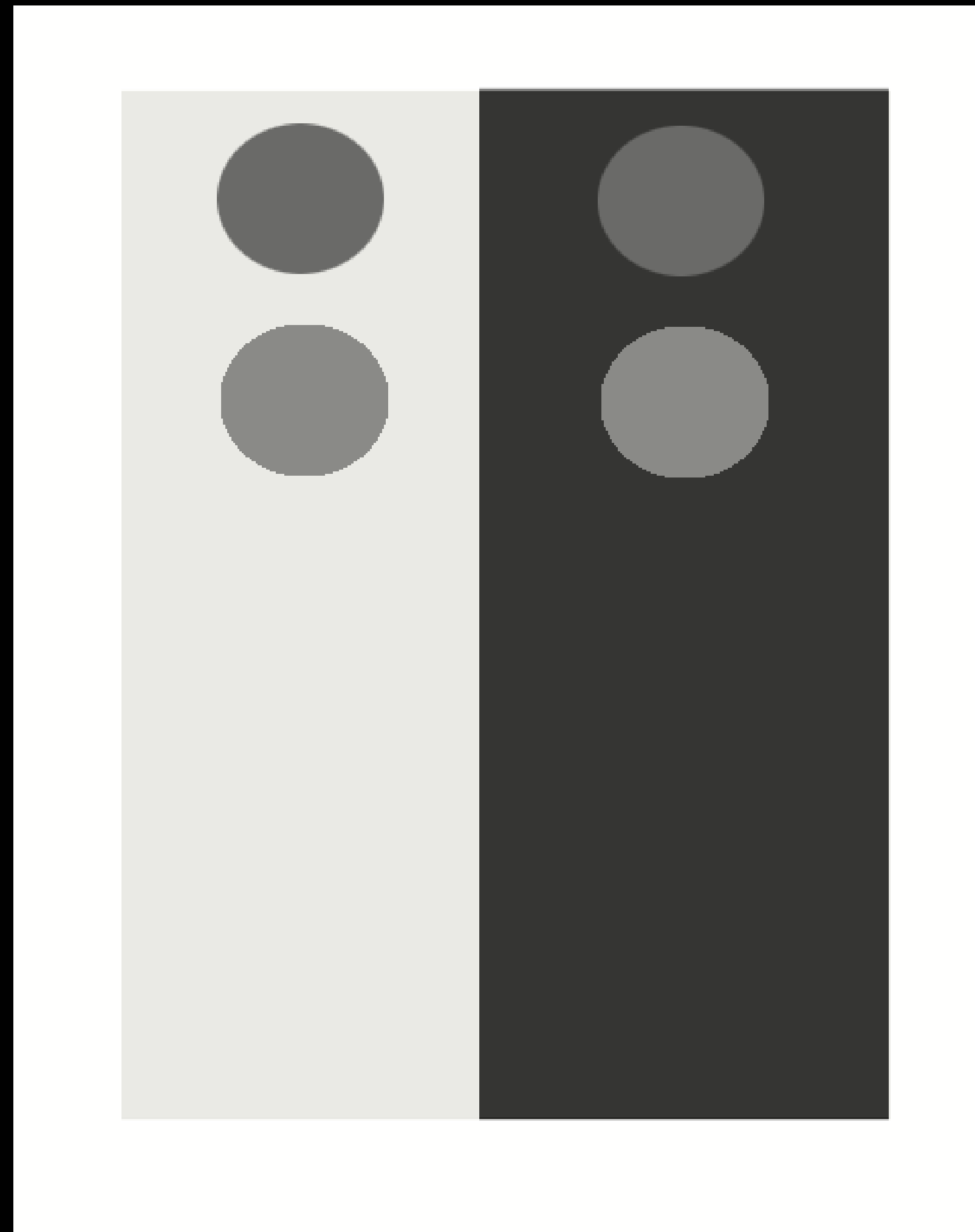


Exposure Blending and HDR (high dynamic range)

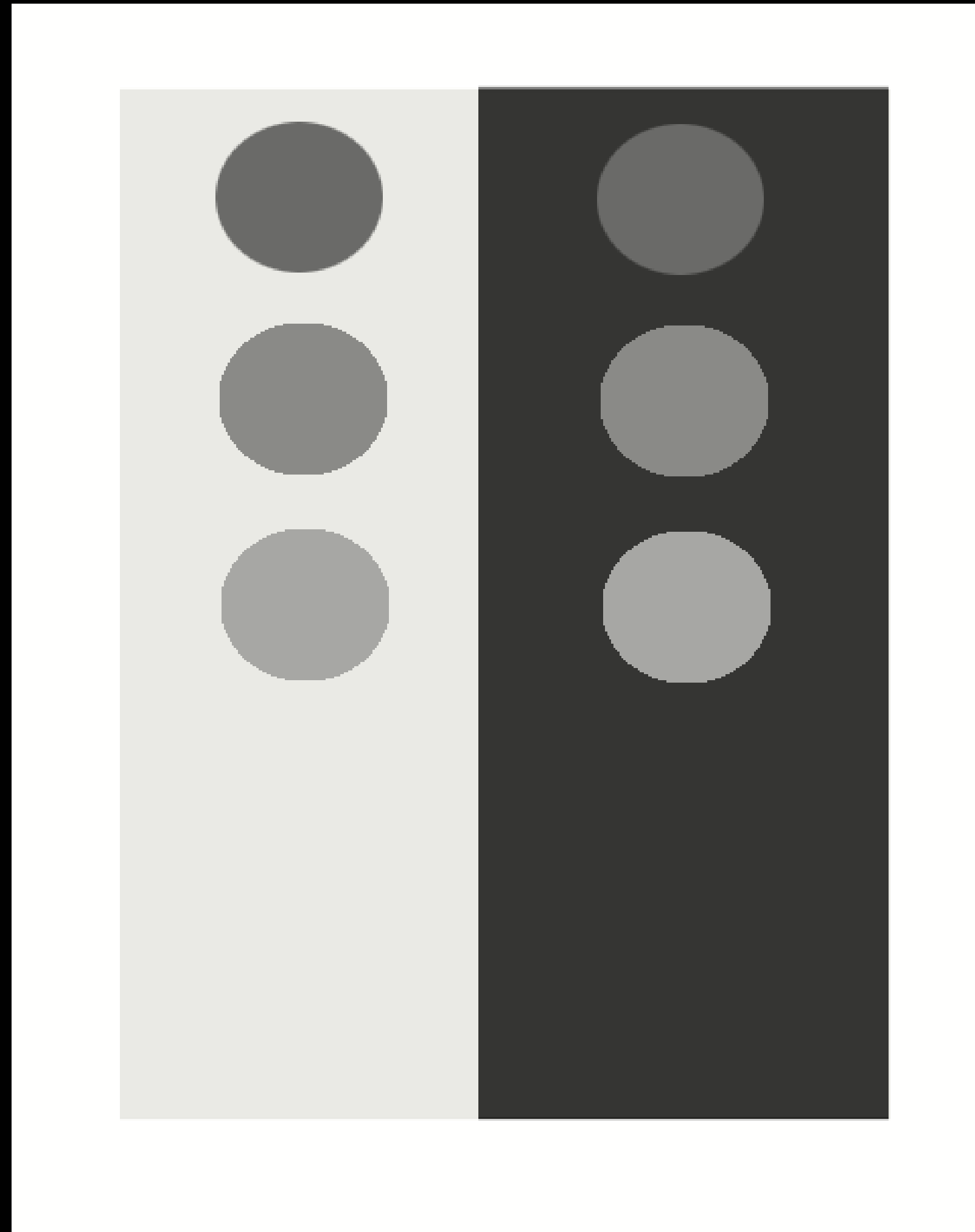
Luminance can be relative



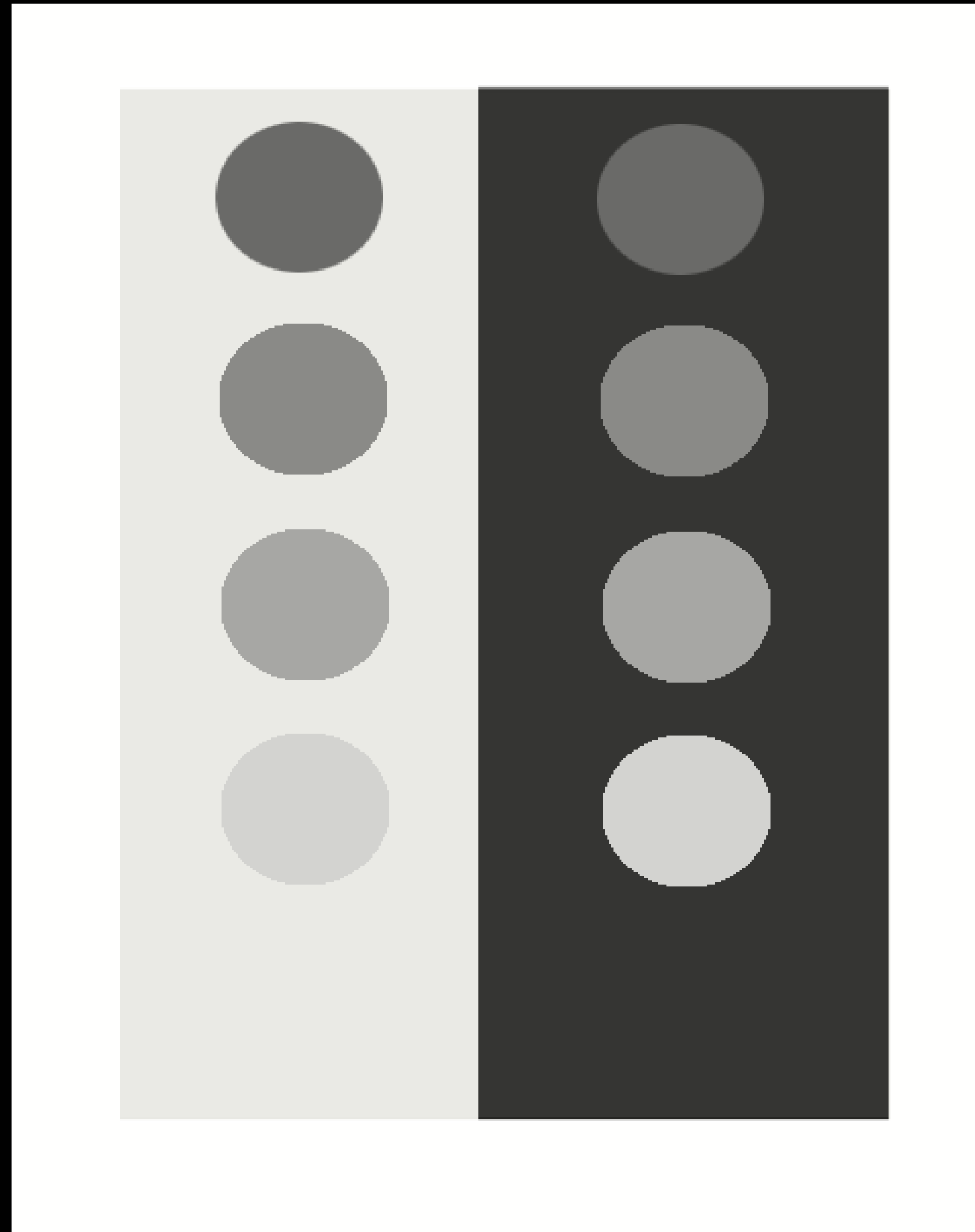
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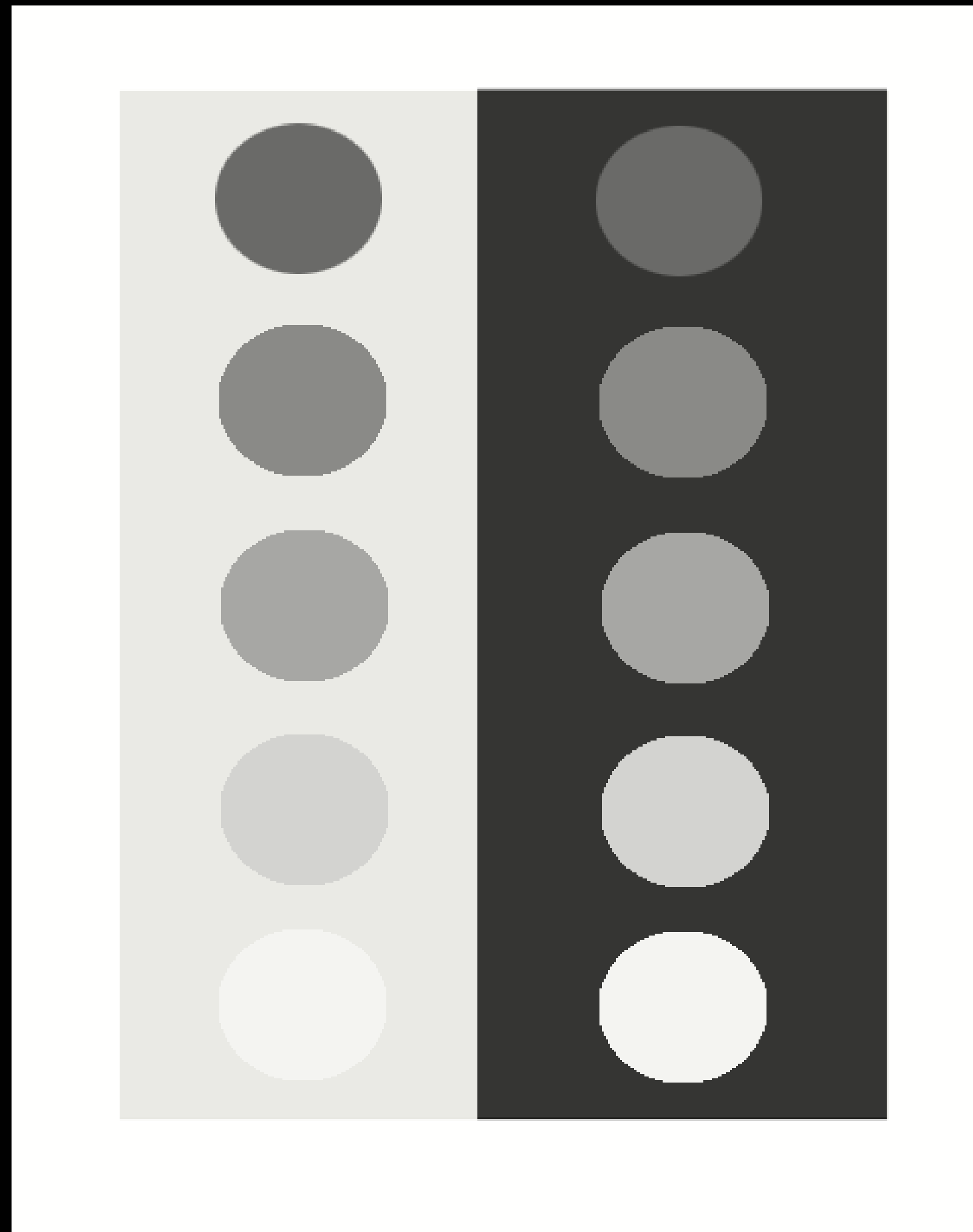
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Luminance can be relative



Texture: Direct or Diffuse, Hard or Soft

Texture creates contrast

Direct/hard light creates high contrast, dark shadows and bright highlights



Diffuse/soft light creates low contrast, mellow shadows and highlights

The smaller the light, the more direct, harder it is

The bigger the light, the more diffuse, softer it is





Diffuse







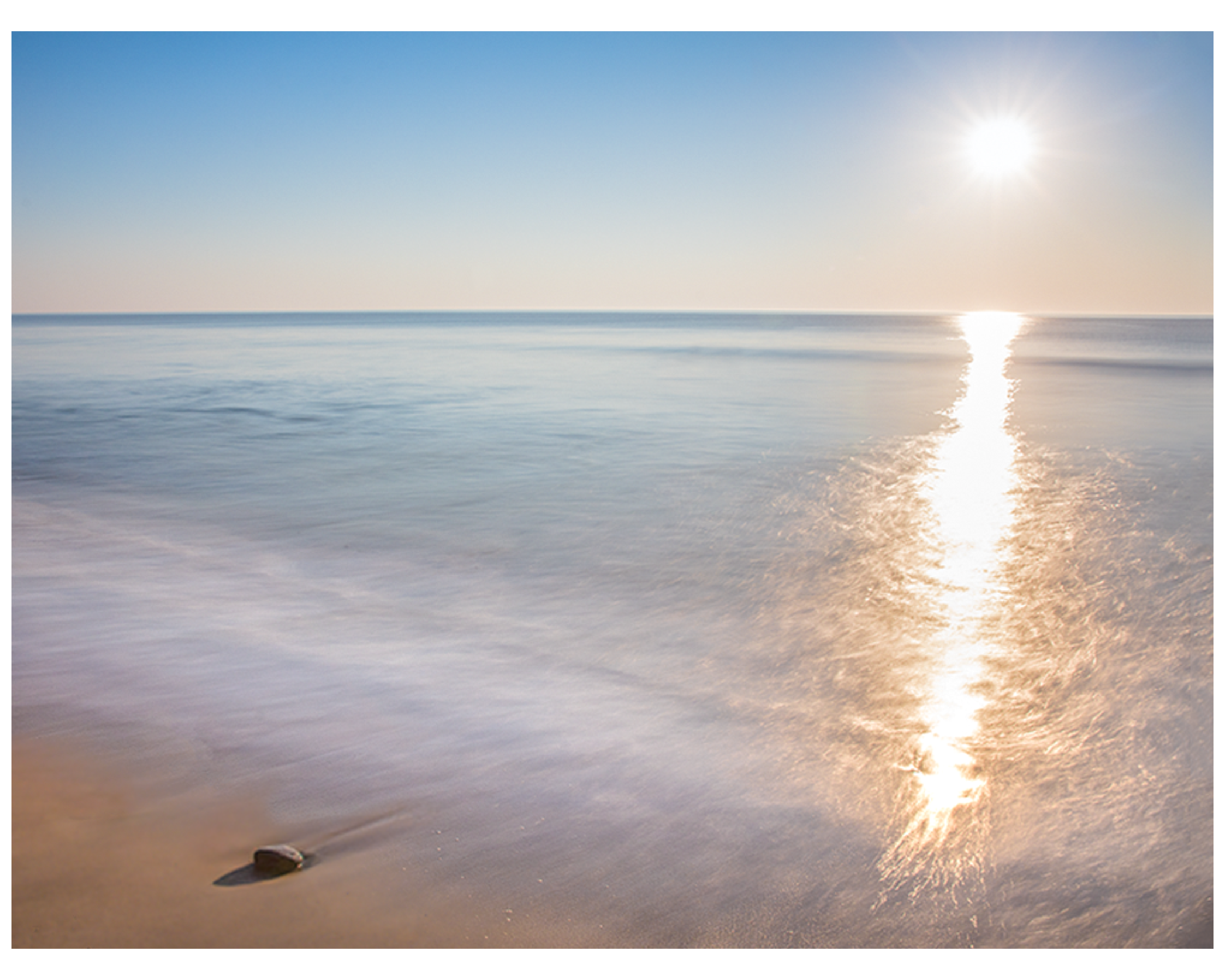




Direct



Direct











COLOR


Different light sources create different colors

Time of Day
&
the Color of Light

Time of Day

Early Morning/Late Afternoon





Time of Day

Golden Hours

(hour +/- after sunrise,
before sunset)

Time of Day

- Blue Hour/Twilight
(half hour before sunrise, after sunset)



Time of Day

Midday







Time of Day

Night









Time of Day & the Color of Light



What else affects light?

The Weather

- Bright Sun
- Partly Cloudy
- Overcast
- Cloudy
- Hazy

Bright Sun/Partly Cloudy

- Direct Light
- Emphasizes shadows and highlights
- Directional Light



Overcast/Bright



Soft, even light. Few shadows

Good Subjects

- Portrait
- Detailed
- Landscapes/Scenes
- Nature (flowers)
- Macro/Close-p
- PJ/travel

Hazy

- Similar to Bright
- Softer Light, with softer shadows/highlights
 - Less detail
- Soft colors, low saturation
 - Directional Light



Cloudy

Low Light, Diffuse Light

Goods Subjects

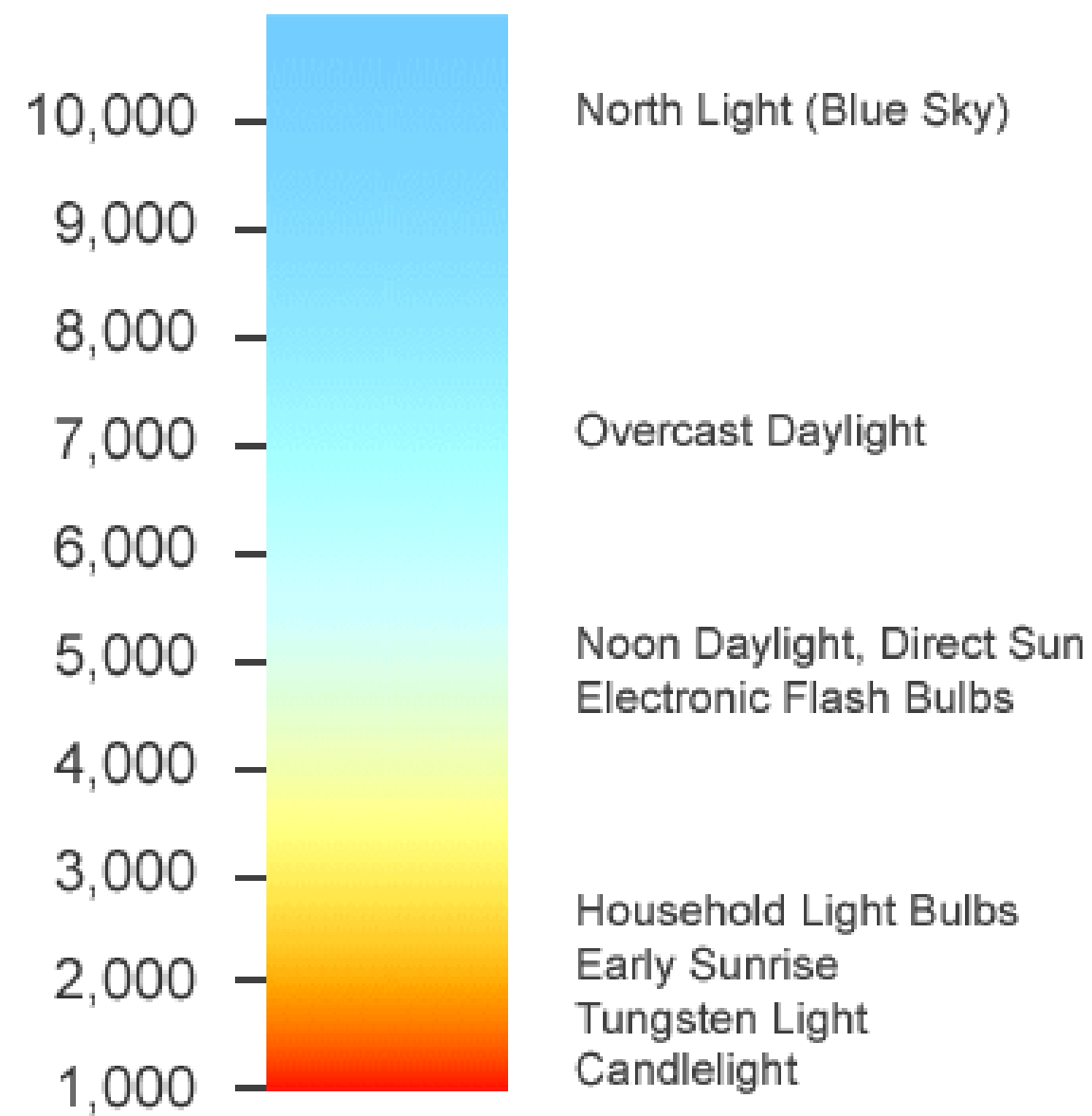
- Moody/atmospheric
- Weather



White Balance: Working with the color of Light

White balance adjusts color temperature
to make colors appear natural

Colour Temperatures in the Kelvin Scale





Cool



Natural

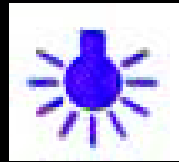


Warm

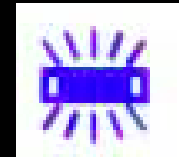
White Balance Controls

AWB

Auto – Camera decides. Works well in most situations



Tungsten – Use indoors. Standard lightbulbs (tungsten) have yellowy cast. “Tungsten” setting adds a little blue to cool color down. Light bulb symbol.



Fluorescent – Fluorescent lights cast a greenish tint. This mode adds magenta to neutralize green. Fluorescent bulb..



Daylight/Sunny – Compensates for midday light. Adds warmth.



Cloudy – Adds warmth. More than “Daylight” setting, but less than “Shade.” Try with sunsets.

Shade – Warms up image. Adds more warmth than “Shady.”



Flash – Flash light is cooler than daylight. Warms up image. Similar to Shade setting.



AWB

5850



AWB

5850



Daylight

5500



AWB

5850



Daylight
5500



Cloudy
7500



AWB

5850



Daylight
5500



Cloudy
7500



Tungsten
2850



AWB

5850



Daylight
5500



Cloudy
7500



Tungsten
2850



Fluorescent
3800

What to do about White Balance

- Leave on AWB – Auto
Auto works well in most cases
- If you notice funny tinge to images, adjust white balance
- RAW shooters can adjust white balance during processing

RGB Color Theory

Primary colors: Red, Blue Green

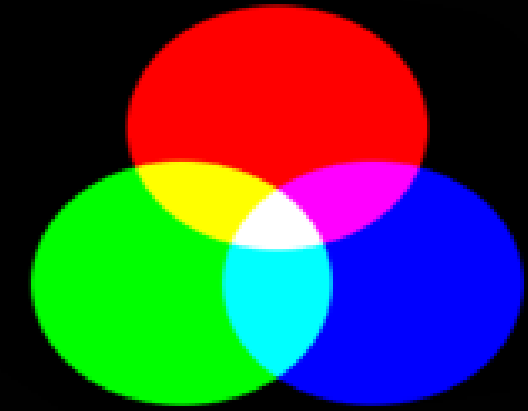
Secondary colors: Cyan, Magenta, Yellow



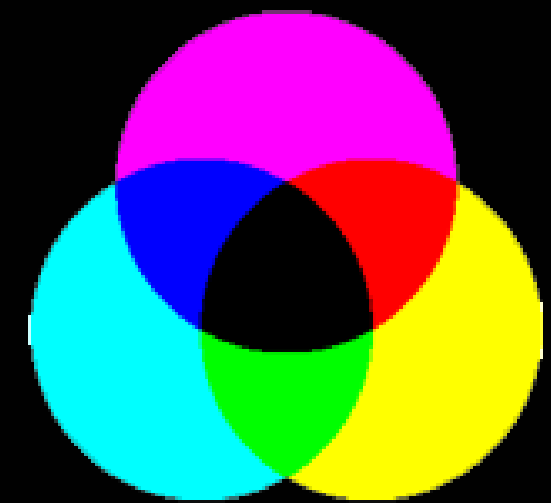
Combinations of red, blue & green
are used to create all colors.

Primary Color Systems

RGB is additive system, emitted light



CMYK (cyan, magenta, yellow, black)
subtractive system for reflected light



RYB (red, yellow, blue) subtractive system
used by painters, art schools



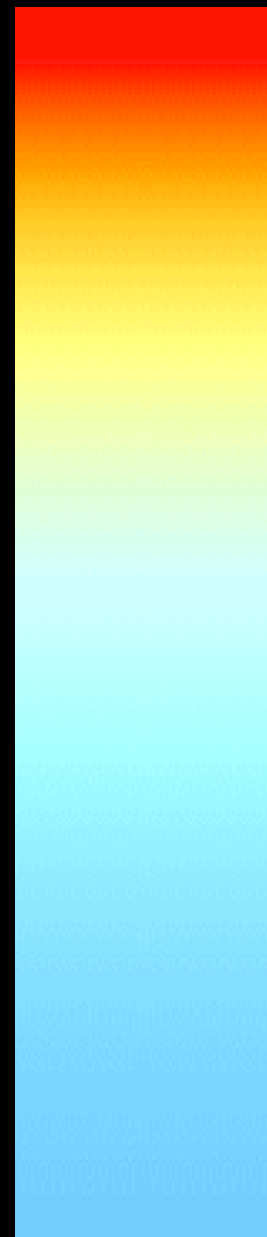
Color Wheel



Harmonious colors are next to each other on color wheel

Complementary colors are separated
by at least one other color

Color Affects/Effects

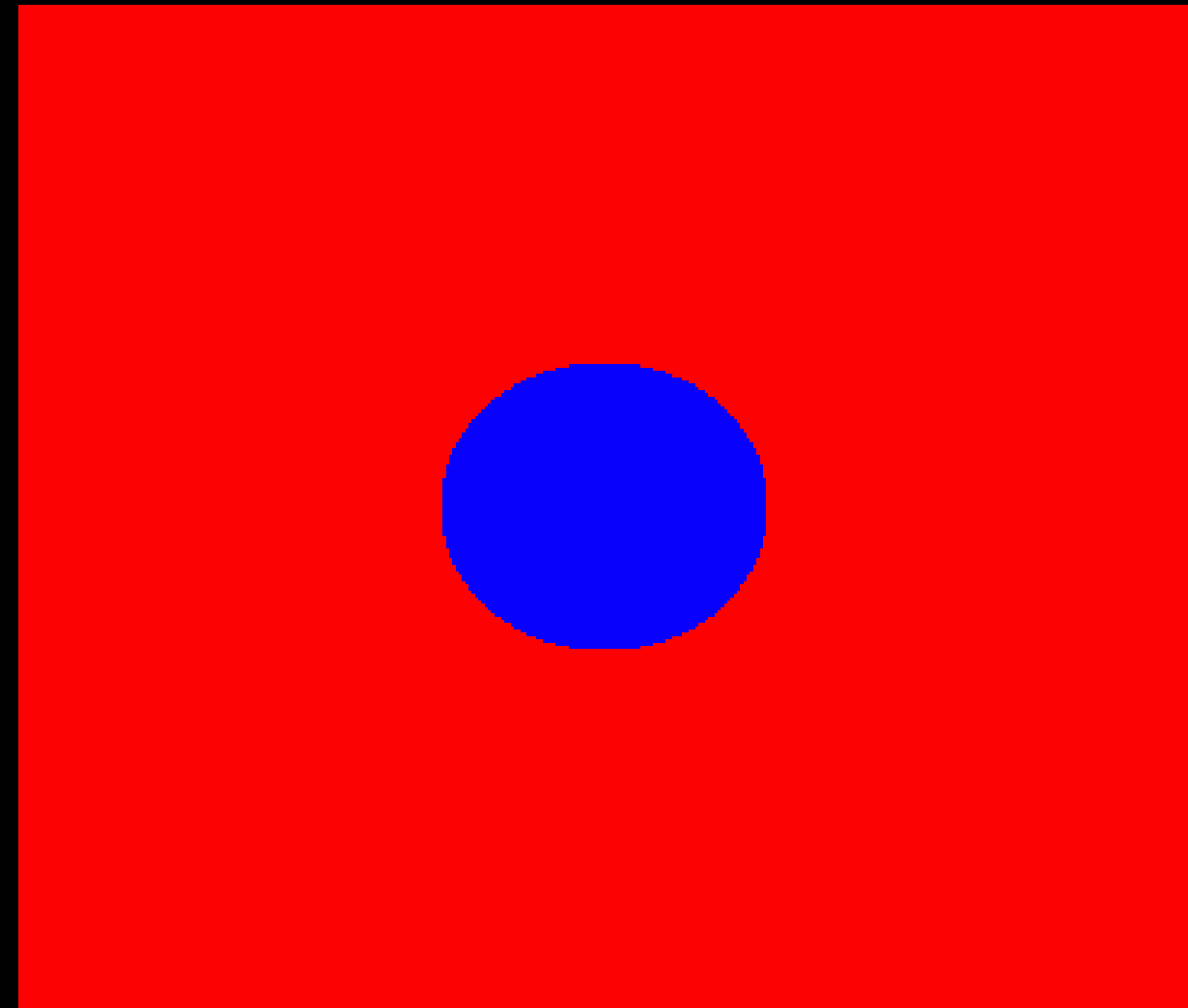
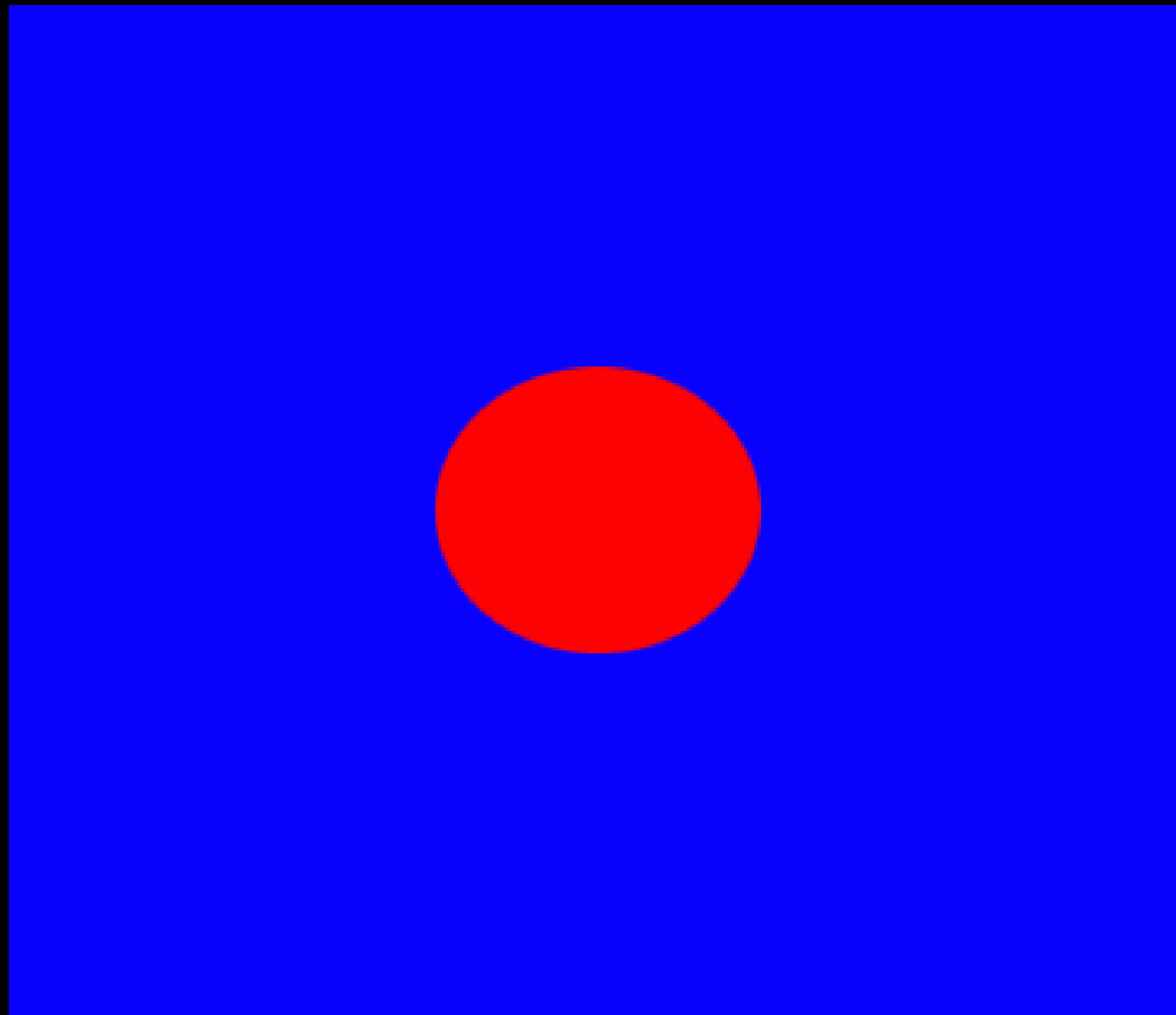


Warm colors advance, stimulate, excite

Cool colors recede, calm, relax

(Take theory with grain of salt. Psychological impact is dependent on context, culture, etc.)

Color Affects/Effects



Warm colors advance, cool colors recede



Cool colors recede



Warm colors advance



Warm colors pop more than cool colors



Harmonious colors



Complementary/contrasting
colors









Four Characteristics of Light

1. Quantity
2. Quality
3. Color
4. ?

4. Angle or Direction of Light

Angle or Direction of Light



Angle or Direction of Light



Side Lighting



Angle or Direction of Light



Side Lighting



Back Lighting



Angle or Direction of Light



Side Lighting



Back Lighting



Front Lighting









Direction of Light: Backlit



Direction of Light: Front lit









Front Lighting:

When light comes
from direction
of camera



45 degree angle



90 degree angle



Side light...*GOOD*



Front light...Not always good
(unless soft, diffused)



Back light...GOOD



Back lighting



Silhouettes



Silhouettes

See the Light

- Quantity (brightness)
- Quality (soft & hard/direct)
 - Color
(time of day, weather, etc.)
- Direction/Angle

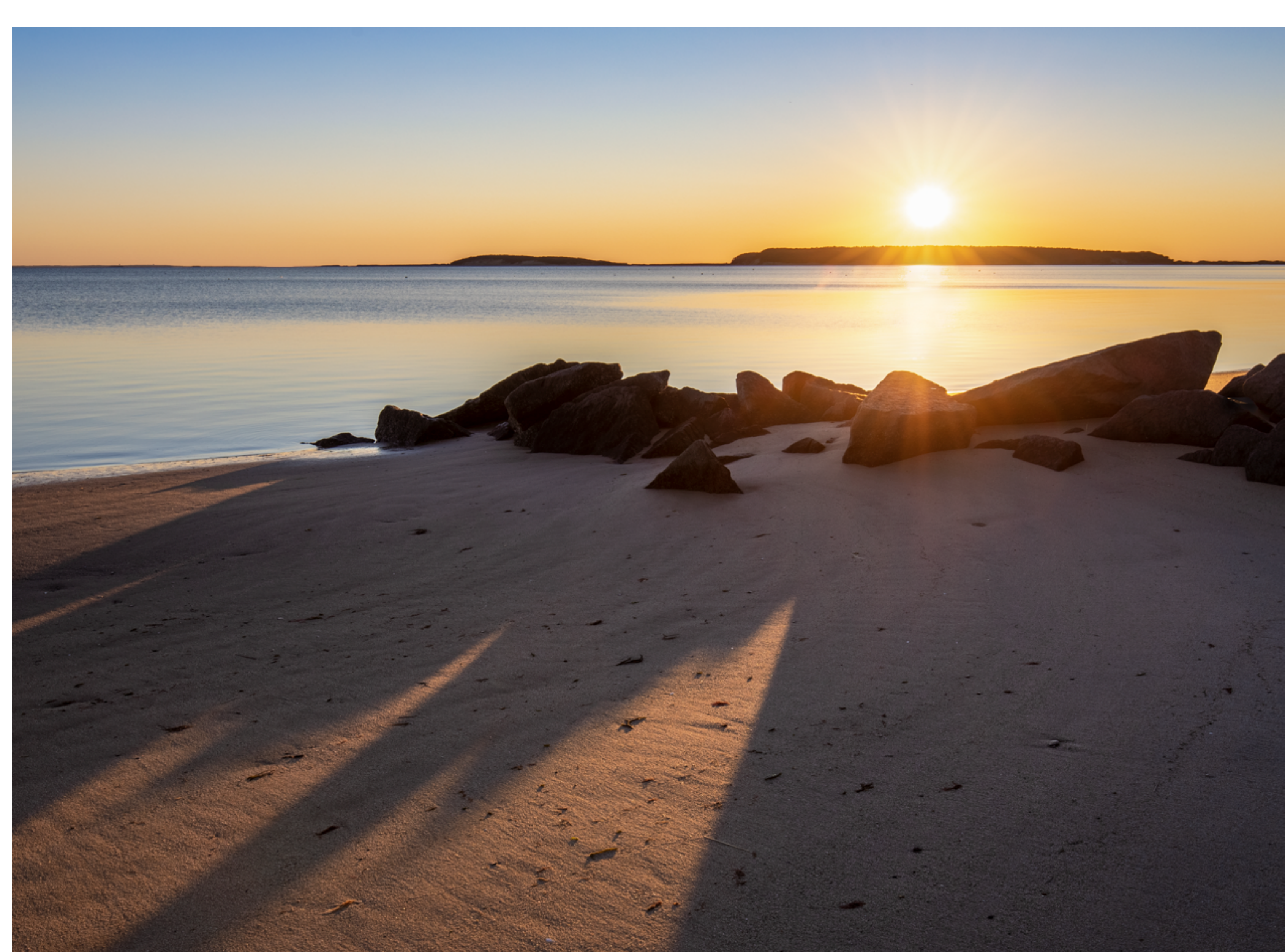


Shoot for the Light

Your eye compensates
(overlooks shadows, highlights, etc.)

The camera doesn't - it records everything

Look past your subject to the light



Look for light...and the shadows

























Look for color

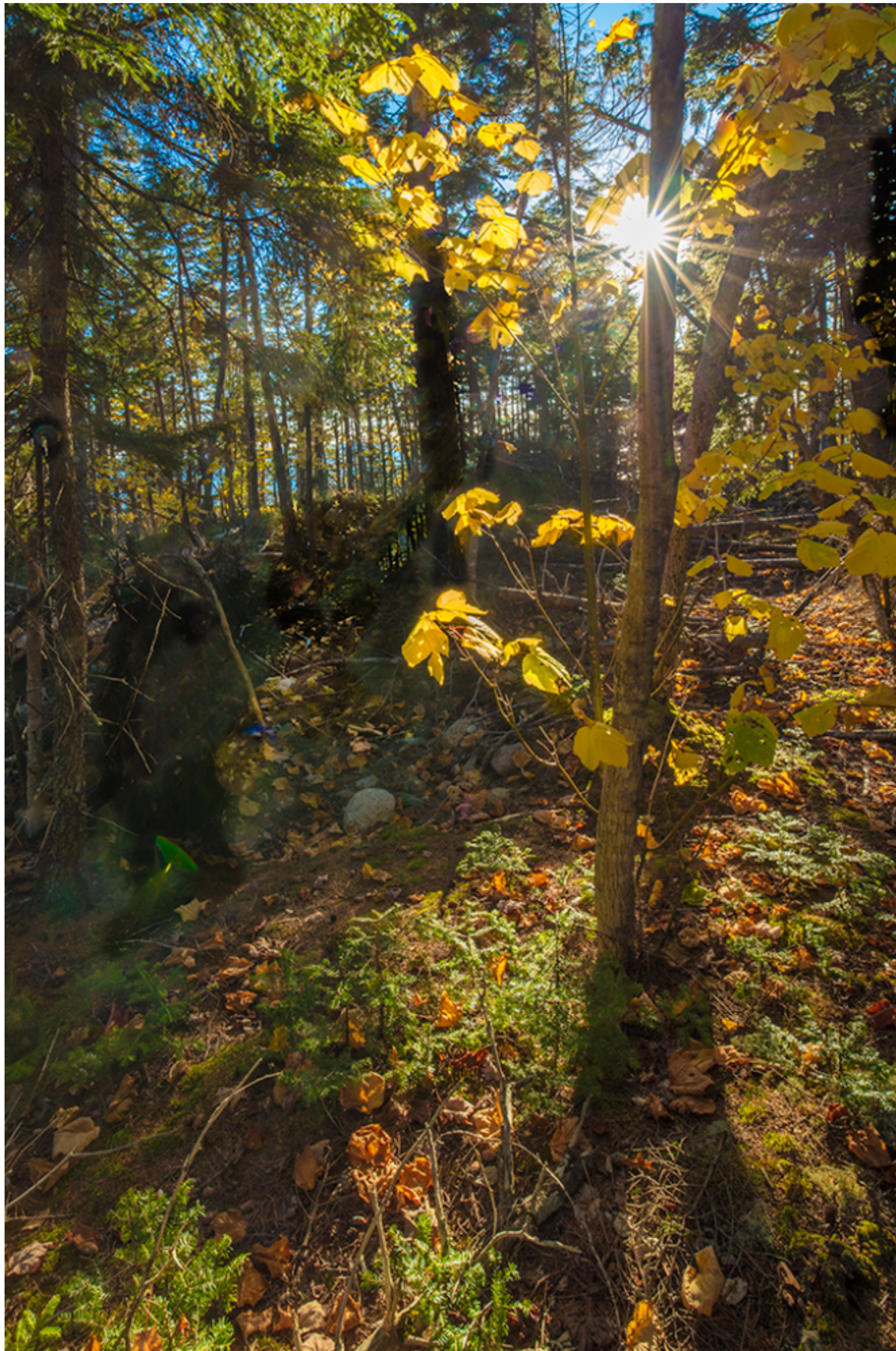




















Before



After

Dodge & Burn



Winter Sunrise
Ansel Adams





Seeing the Light Exercises

1. Photograph an object from front, back and side to see the effect of light from different directions
2. Look for the line or point where two or more harmonious colors meet and photograph it. Do the same thing with contrasting colors. The point doesn't have to be the center of the composition (rule of thirds).
3. Look for the line or point where shadow and highlight meet and photograph it
4. Photograph an object or scene at different times during a single day to capture the changing color of light.
5. Look for colors in the form of geometric shapes (square, triangles, circles...)