

A photograph of a sunset over a body of water. The sun is a bright, glowing orb in the upper left quadrant, with its light reflecting as a vertical, shimmering path of light down the center of the water. The sky transitions from a pale yellow near the horizon to a deeper orange and then to a dark, almost black, top. The water's surface is textured with small ripples, creating a shimmering effect in the reflection.

Seeing the Light

Four Characteristics of Light



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- Intensity (Brightness/Luminance)

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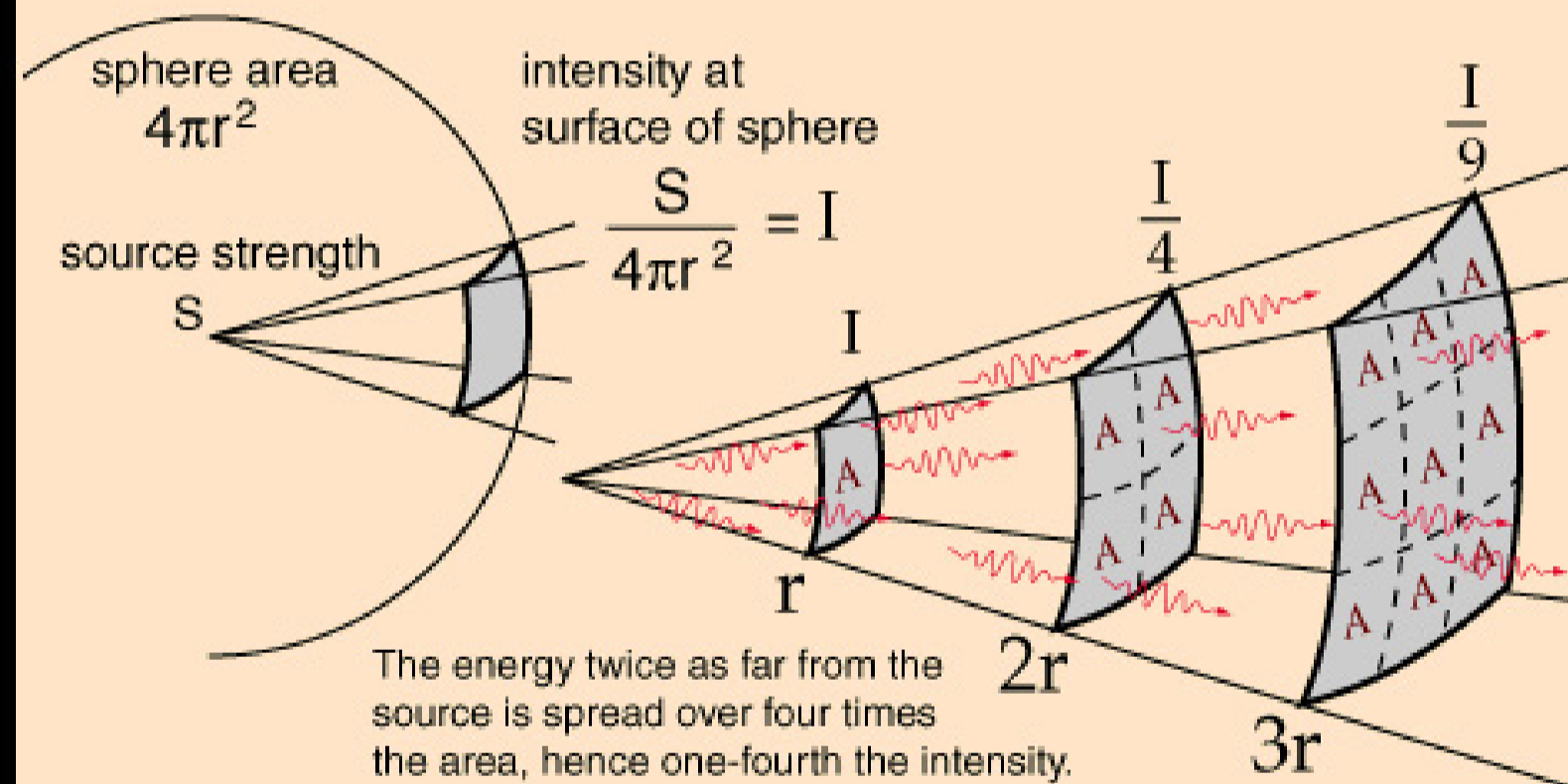
Luminance: Amount of Light

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](#).



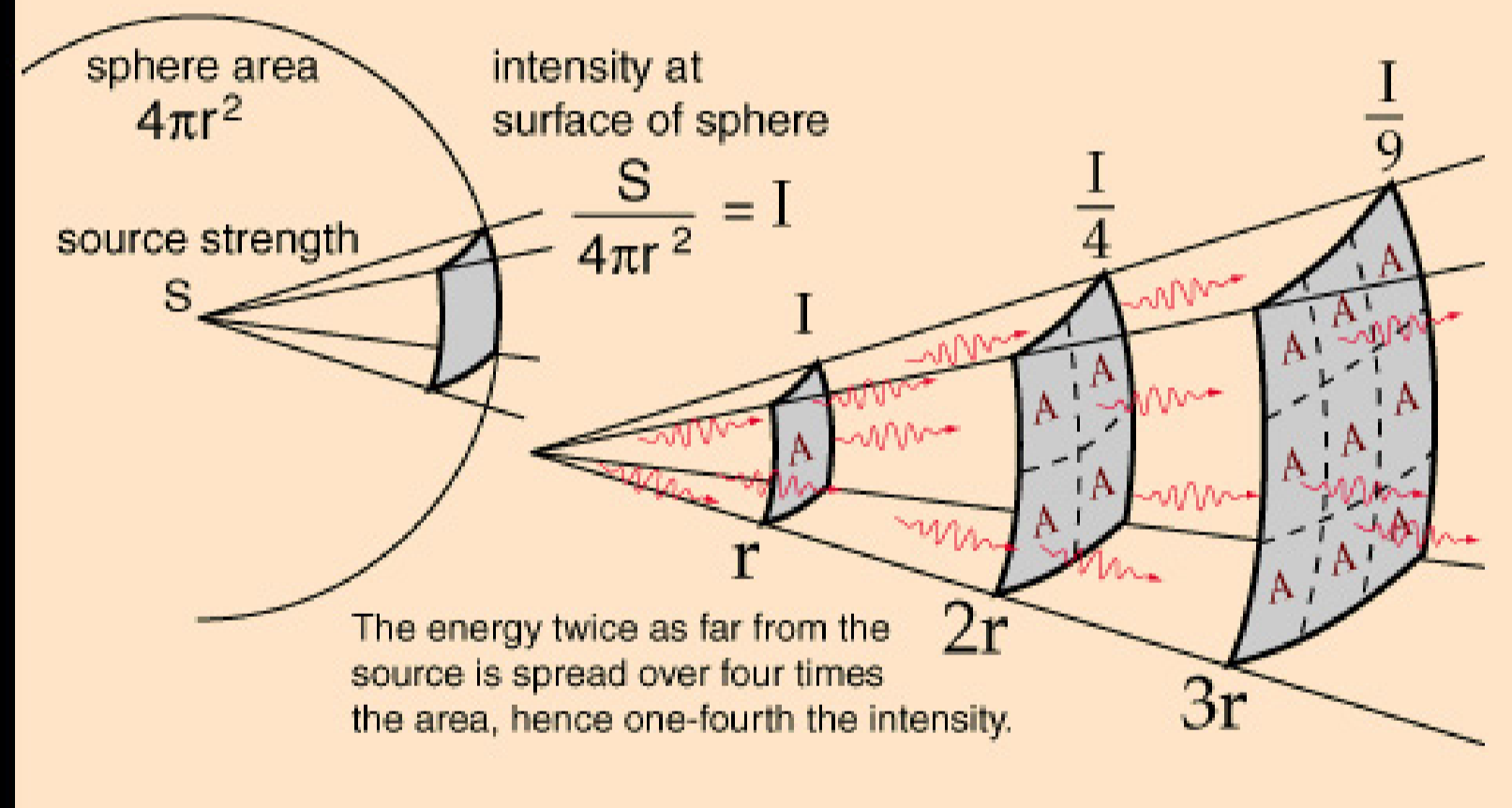
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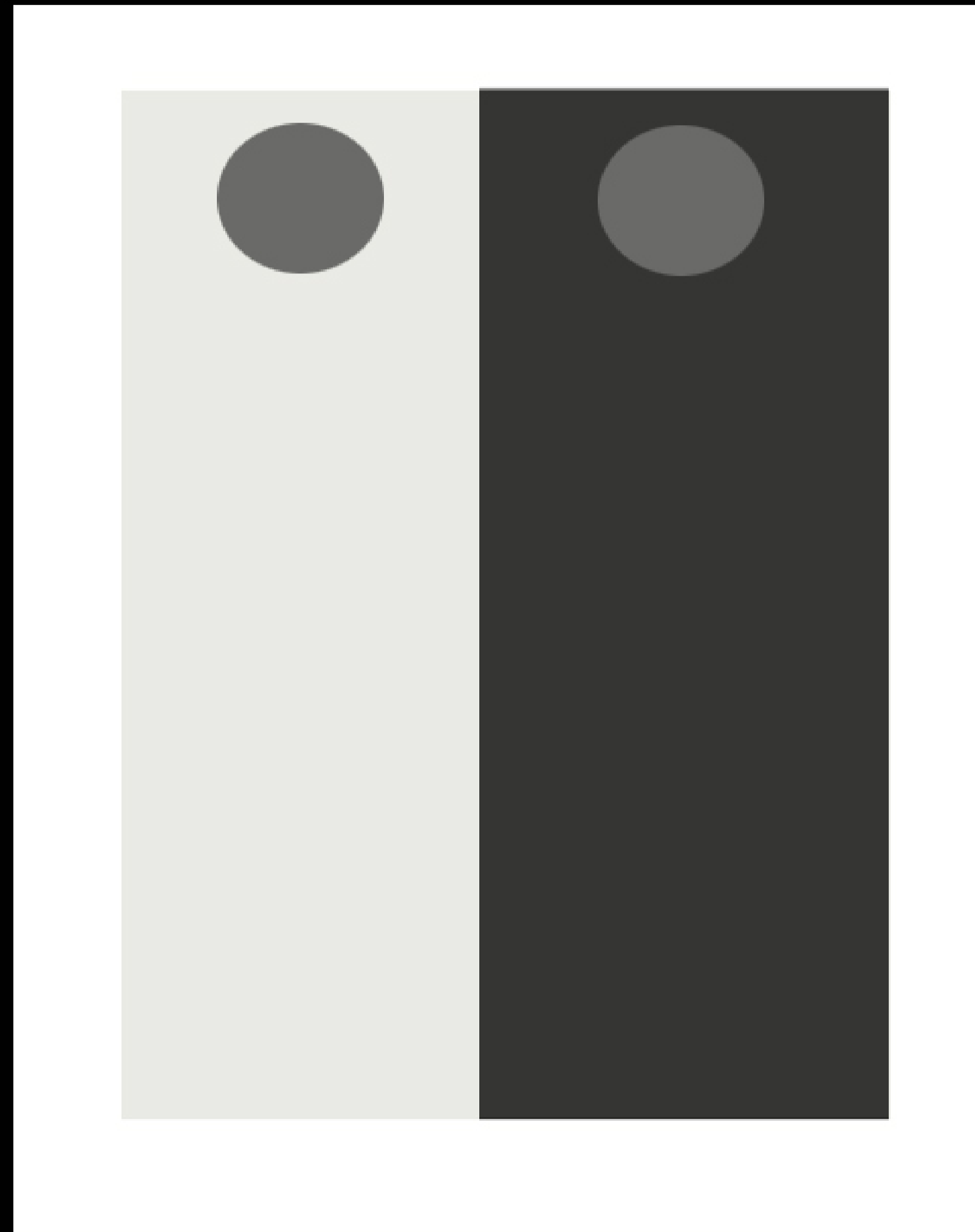
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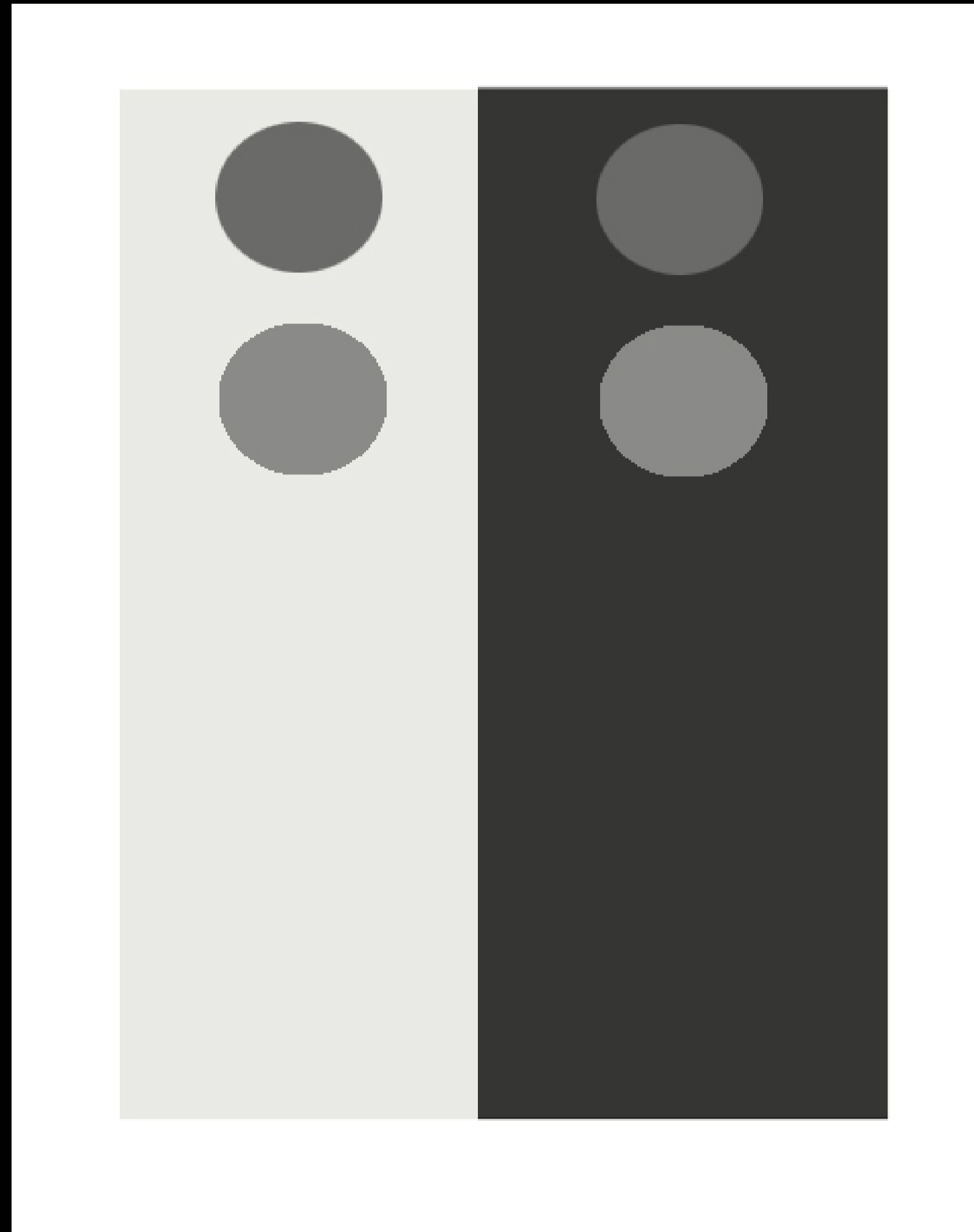


(Light gets weaker as it travels from its source)

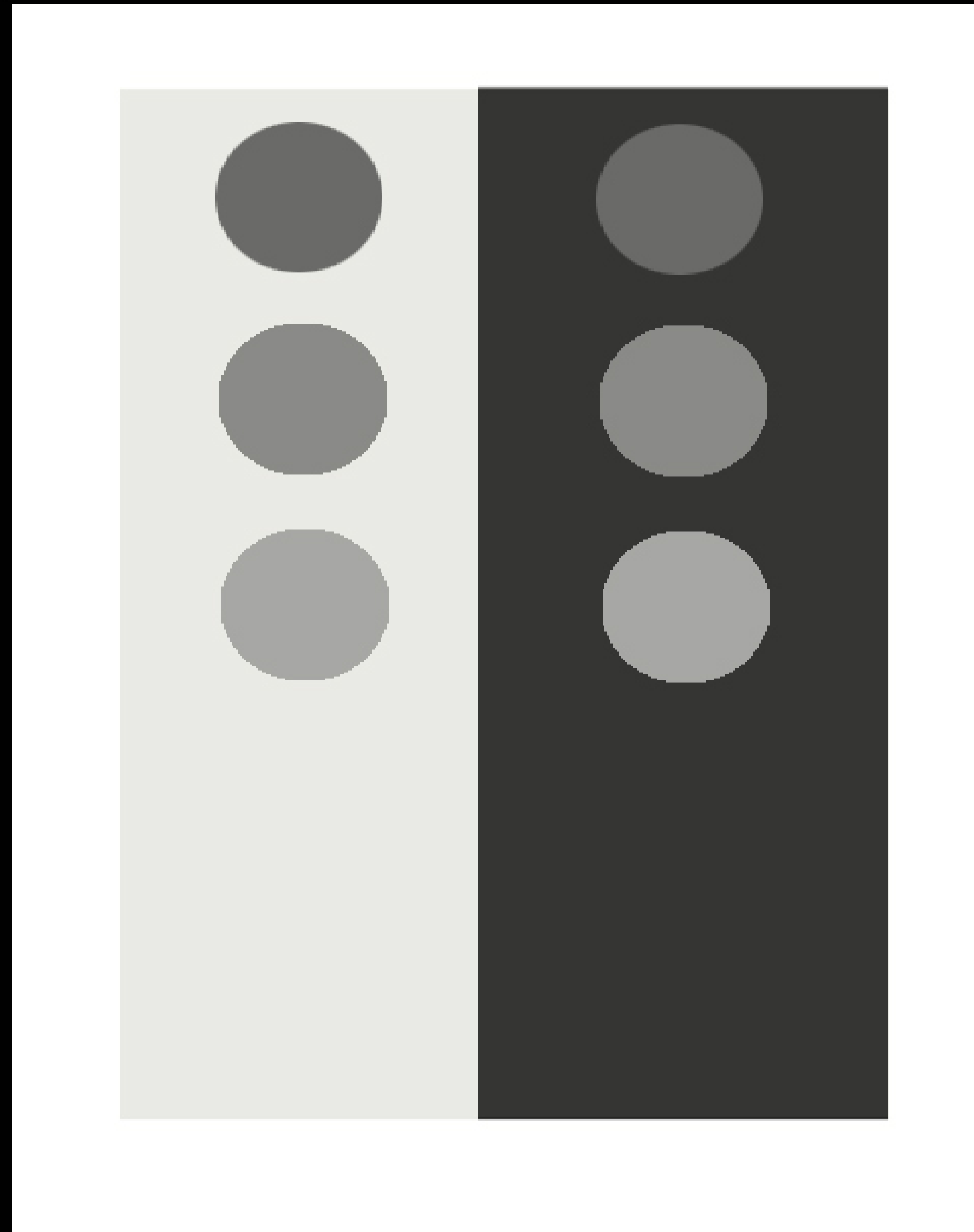
Luminance can be relative



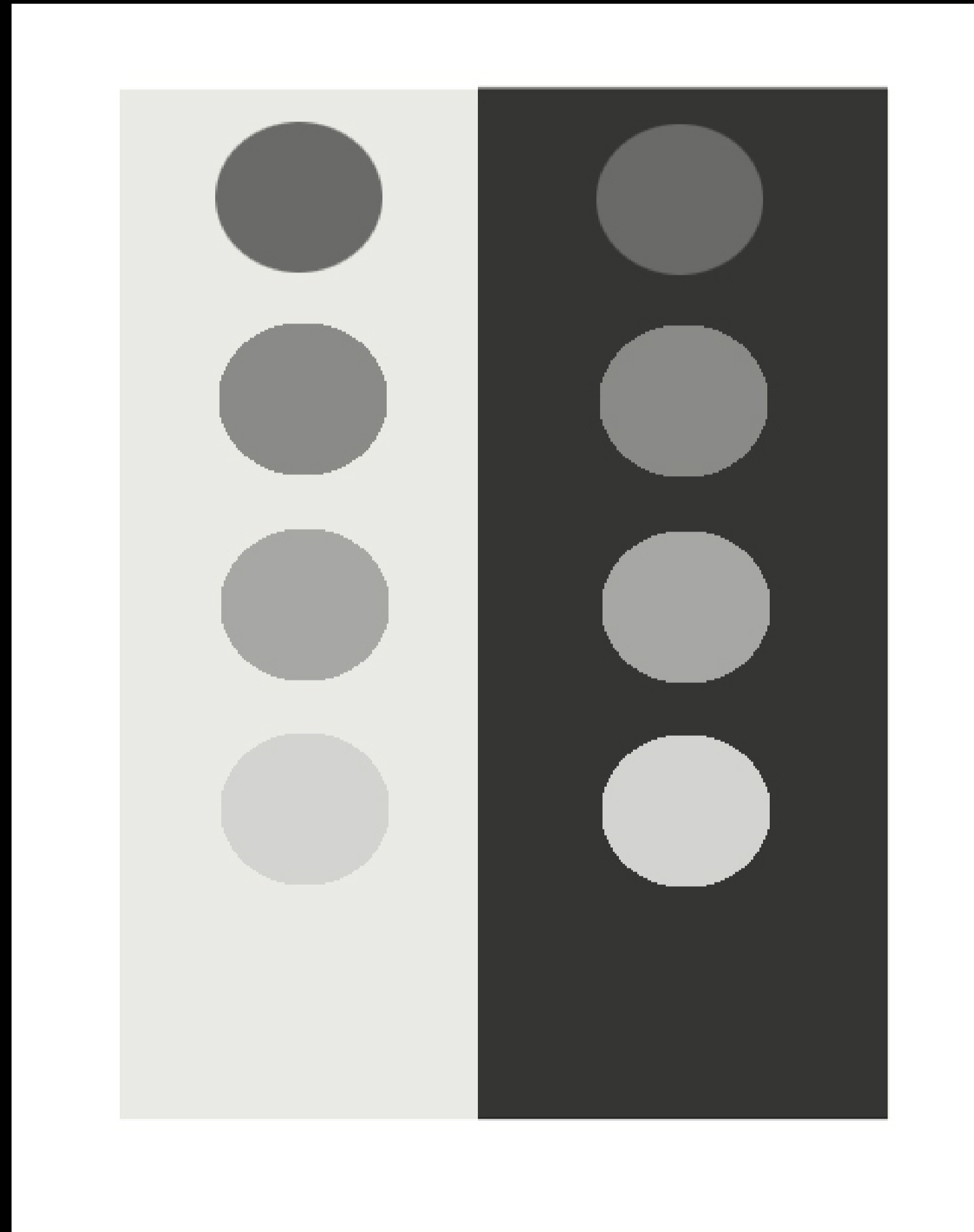
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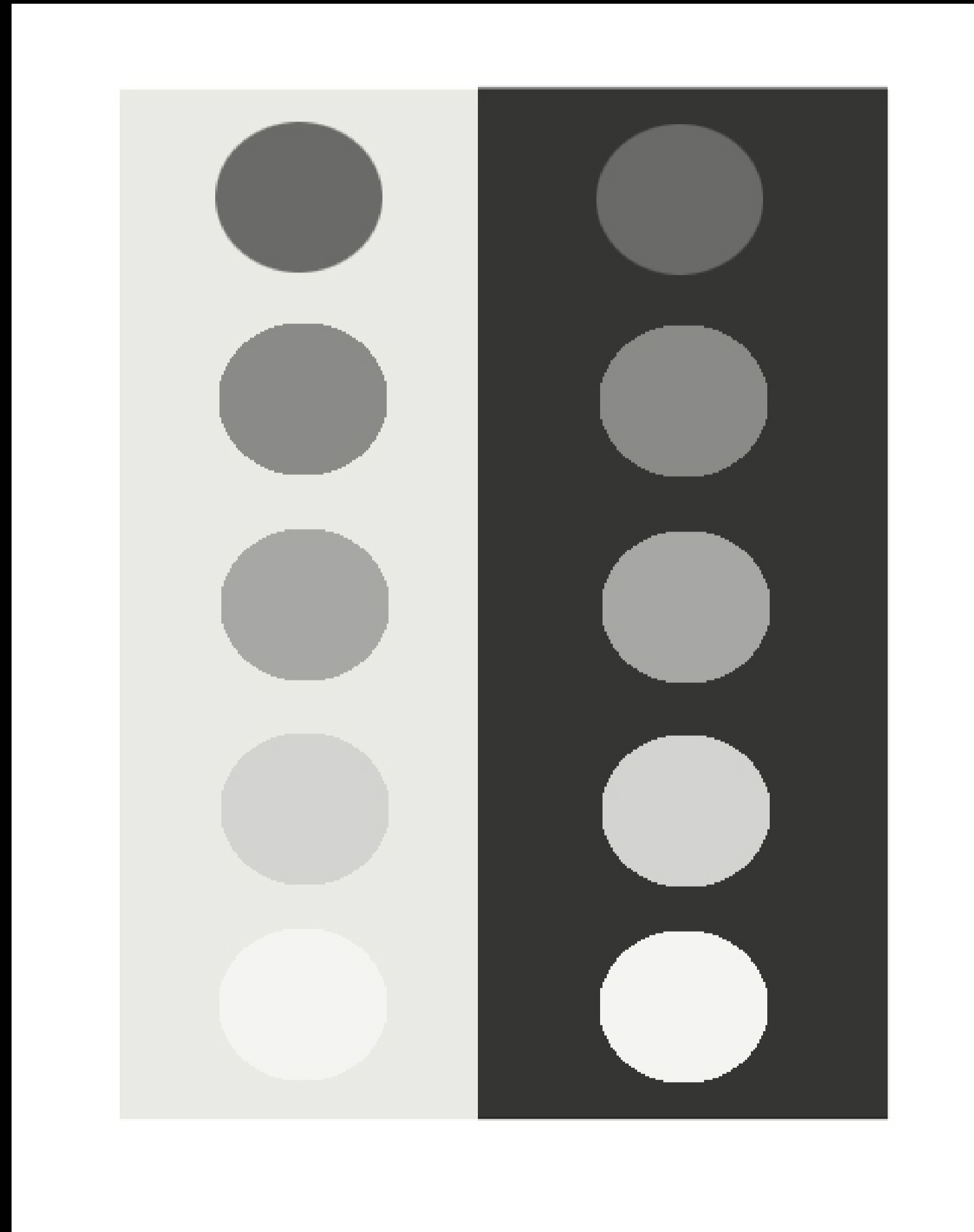
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Luminance can be relative



Luminance: Amount of Light

If not enough light...

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If not enough light...

- Increase exposure, ISO

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- Add light (flash, reflector, other sources)

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Luminance: Amount of Light

If not enough light...

- Increase exposure, ISO
- Add light (flash, reflector, other sources)
- Move subject
- Come back another time

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- Photoshop

Luminance: Amount of Light

If too much light...

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If too much light...

- Decrease exposure, ISO

Luminance: Amount of Light

If too much light...

- Decrease exposure, ISO
- Reduce light (move light away, block light, diffusers)

Luminance: Amount of Light

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- Reduce light (move light away, block light, diffusers)
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- Come back another time
- Photoshop

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, mellower shadows and highlights

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

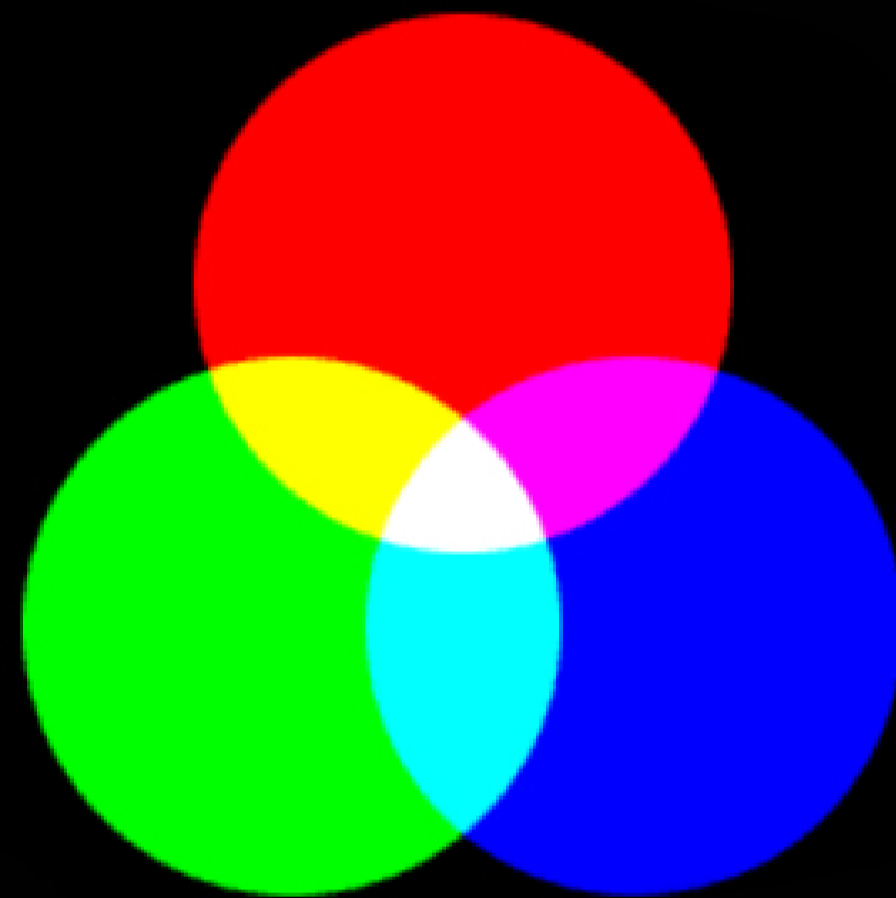
The bigger the light, the more diffuse, softer it is



RGB Color Theory

Primary colors: Red, Blue Green

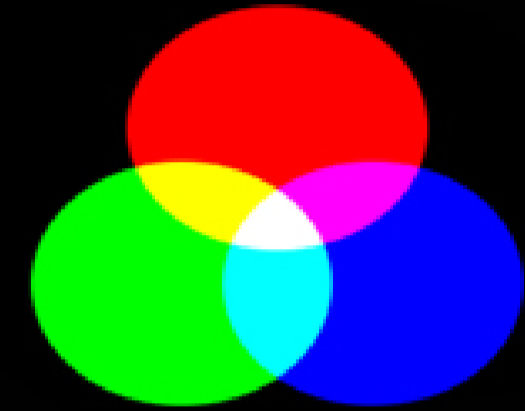
Secondary colors: Cyan, Magenta, Yellow



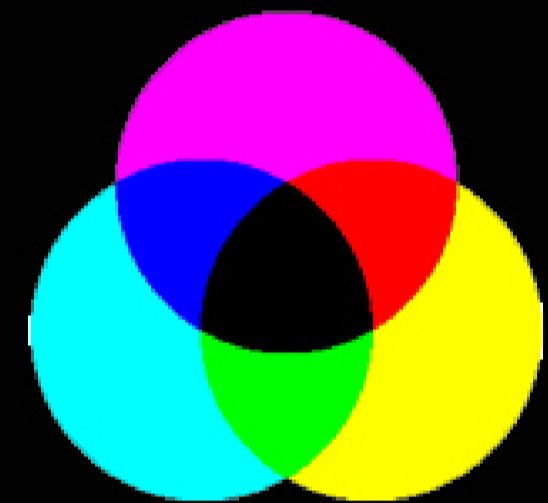
Combinations of red, blue & green
are used to create all colors.

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



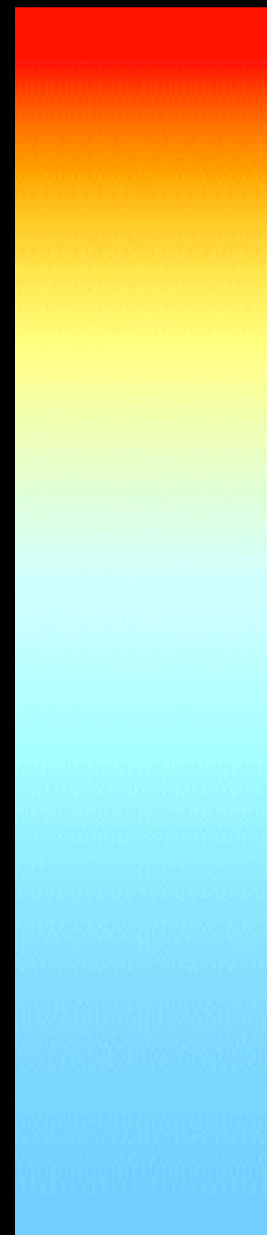
Color Wheel



Harmonious colors are next to each other on color wheel

Complementary colors are separated
by at least one other color

Color Affects/Effects

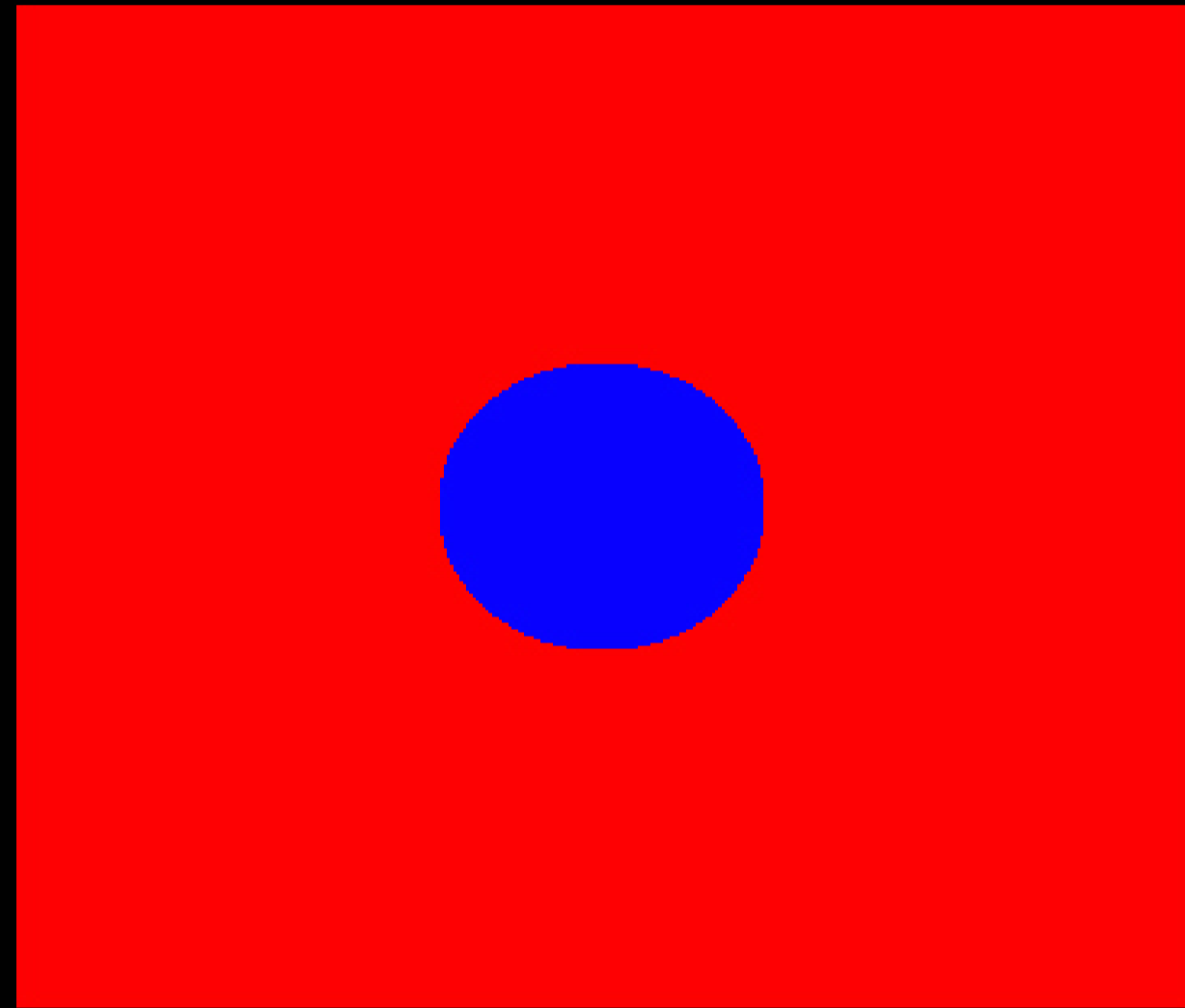
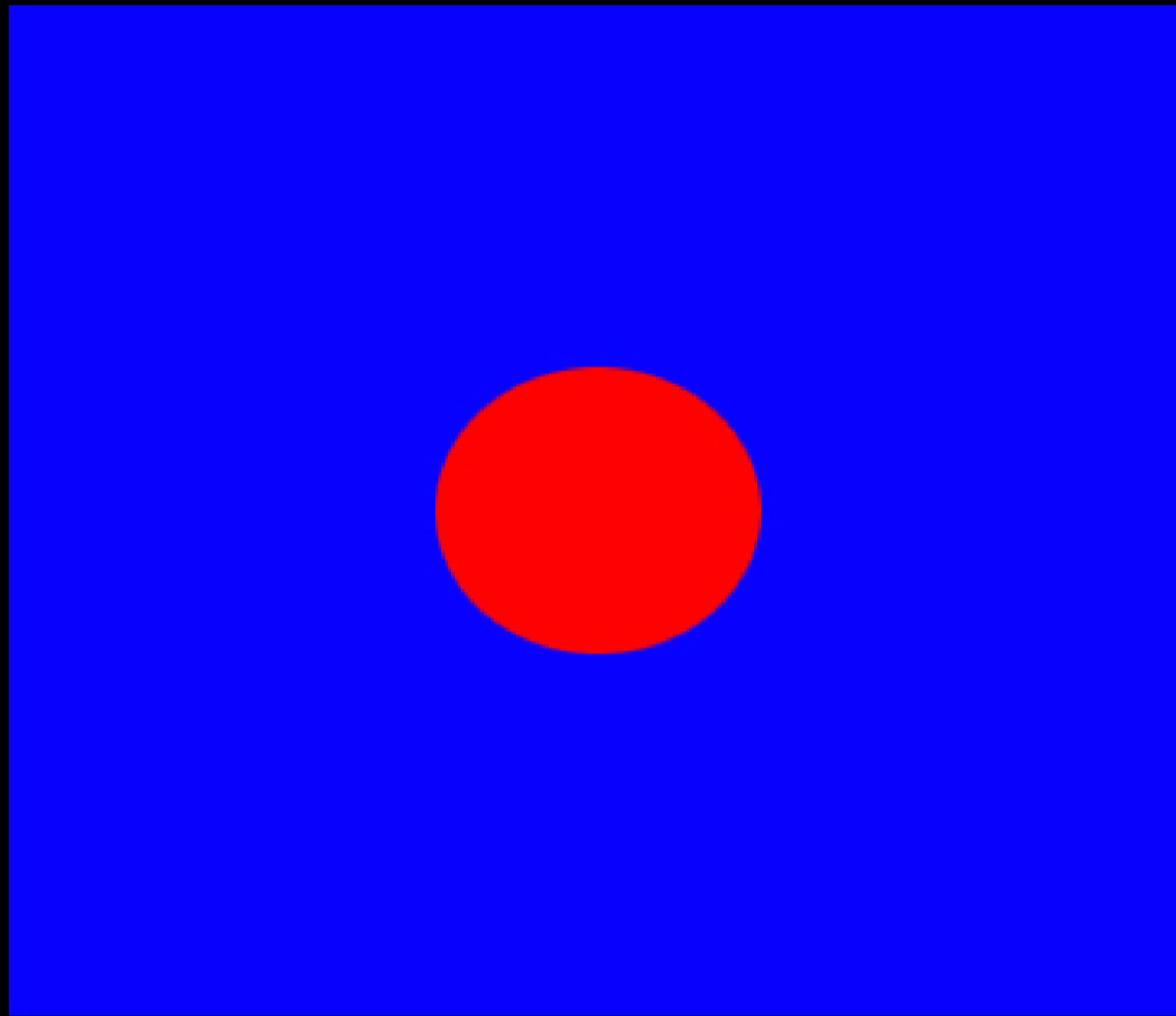


Warm colors advance, stimulate, excite

Cool colors recede, calm, relax

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

Color Affects/Effects



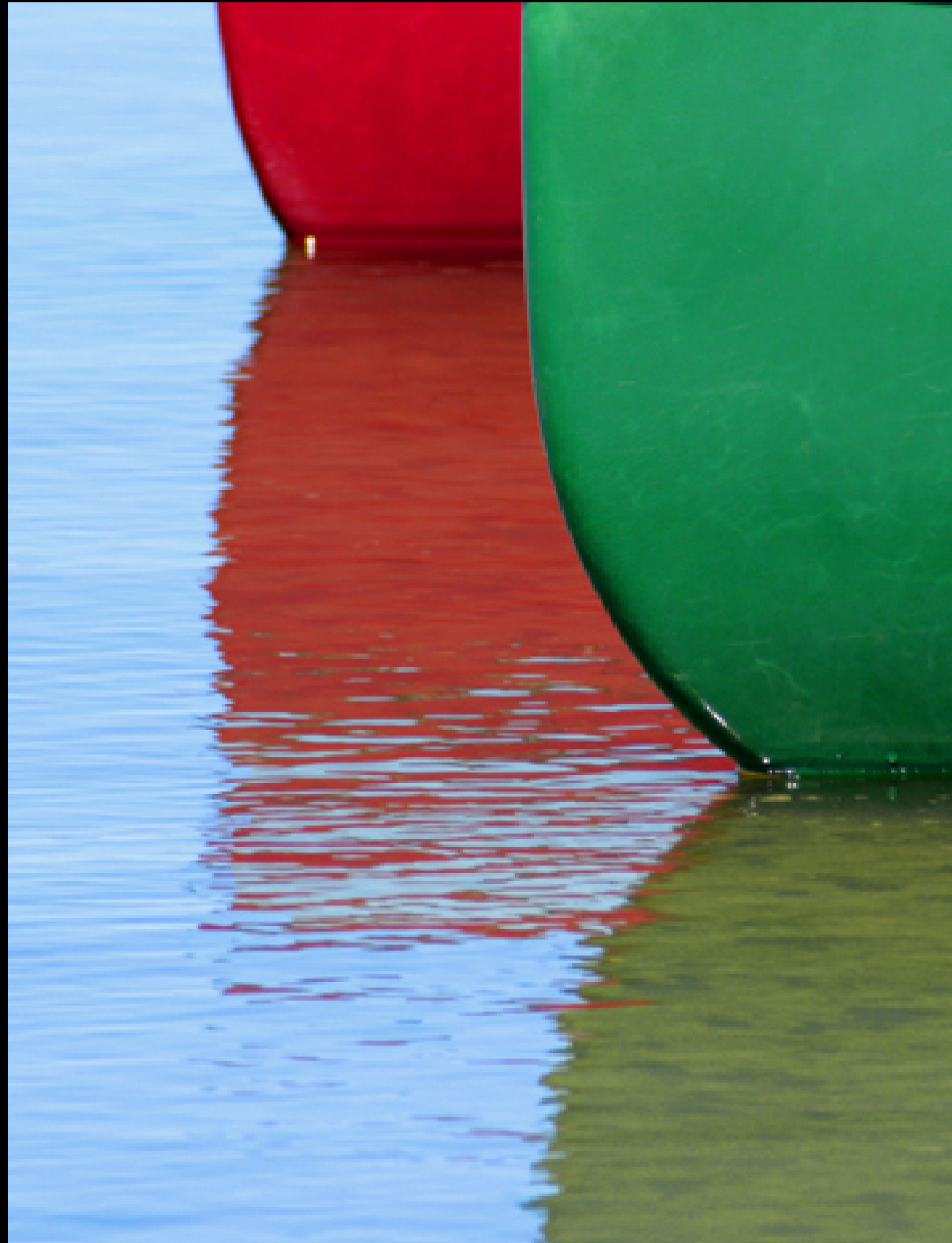
Warm colors advance, cool colors recede



Cool colors recede



Warm colors advance



Warm colors pop more than cool colors



Harmonious colors



Complementary/contrasting
colors









Light Sources

- Natural/Sun



- Artificial



Artificial Light

- Incandescent
- Fluorescent
- Flash
- Candlelight/Firelight



What affects
natural light?

The Weather

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

Bright Sun/Partly Cloudy

- Direct Light
- Emphasizes shadows and highlights
- Directional Light



Bright Sun/Partly Cloudy

Good Subjects

- Landscapes/scenics
(early or late in day)
- Street photography
- Architecture
(buildings, bridges, etc.)
- Sports/Action
- PJ/Travel

Bright Sun/Partly Cloudy

Challenges

- Portraits
- Nature and wildlife
- Water

Bright Sun/Partly Cloudy

Tips:

- Use polarizer filter to reduce glare, increase saturation
- Fill flash, reflectors, diffusers
- Editing software can reduce shadows/highlights a bit

Overcast/Bright



Soft, even light. Few shadow

Good Subjects

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

Overcast/Bright

Challenges

- Landscapes
(lack of shadow/highlights softens forms)
- Texture
- Architecture

Tip: Editing software can increase contrast and saturation

Hazy

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



Hazy

Good Subjects/Challenges

- Mostly depends on specific situations
- Can work with nature, pj/travel, street scenes, events

Tips:

- UV lens filter will cut haze
- Pay attention to direction of light, shadows highlights

Cloudy

Low Light, Diffuse Light

Goods Subjects

- Moody/atmospheric
- Weather



Cloudy

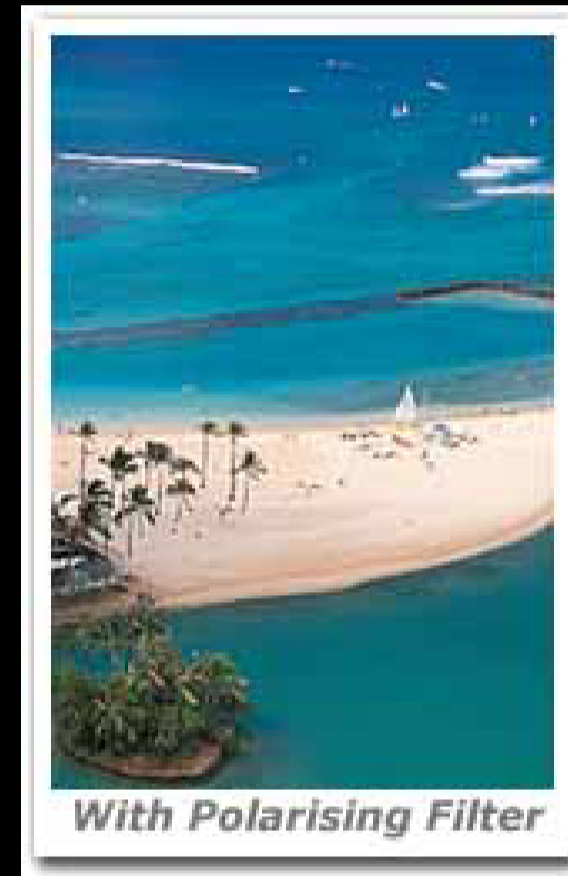
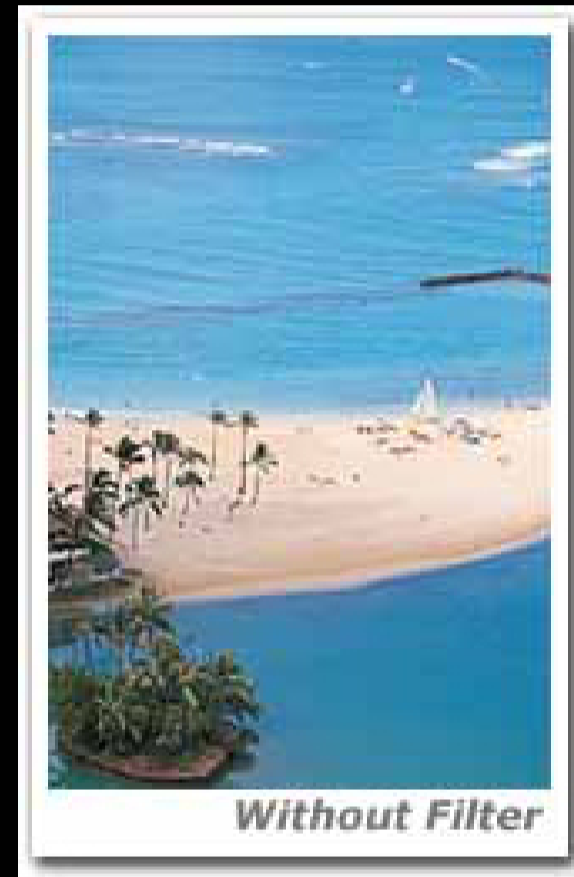
Challenges

- Detail shots (landscape, architecture, etc.)

Tips:

- Low light photography
- Open lens
- Increase ISO
- Fill Flash

Polarizer Filter



Reduces glare and haze
Increases saturation
Makes blue sky or water bluer



Un-Polarized



Polarized

UV/Sky Filter



Reduces haze
Improves clarity & contrast
Can protect lens

UV/Sky Filter



Reduces haze
Improves clarity & contrast
Can protect lens

What else affects
natural light?

Time of Day
&
the Color of Light

Time of Day

Early Morning/Late Afternoon



Time of Day

Midday



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

Night



Time of Day

Night



Time of Day & the Color of Light



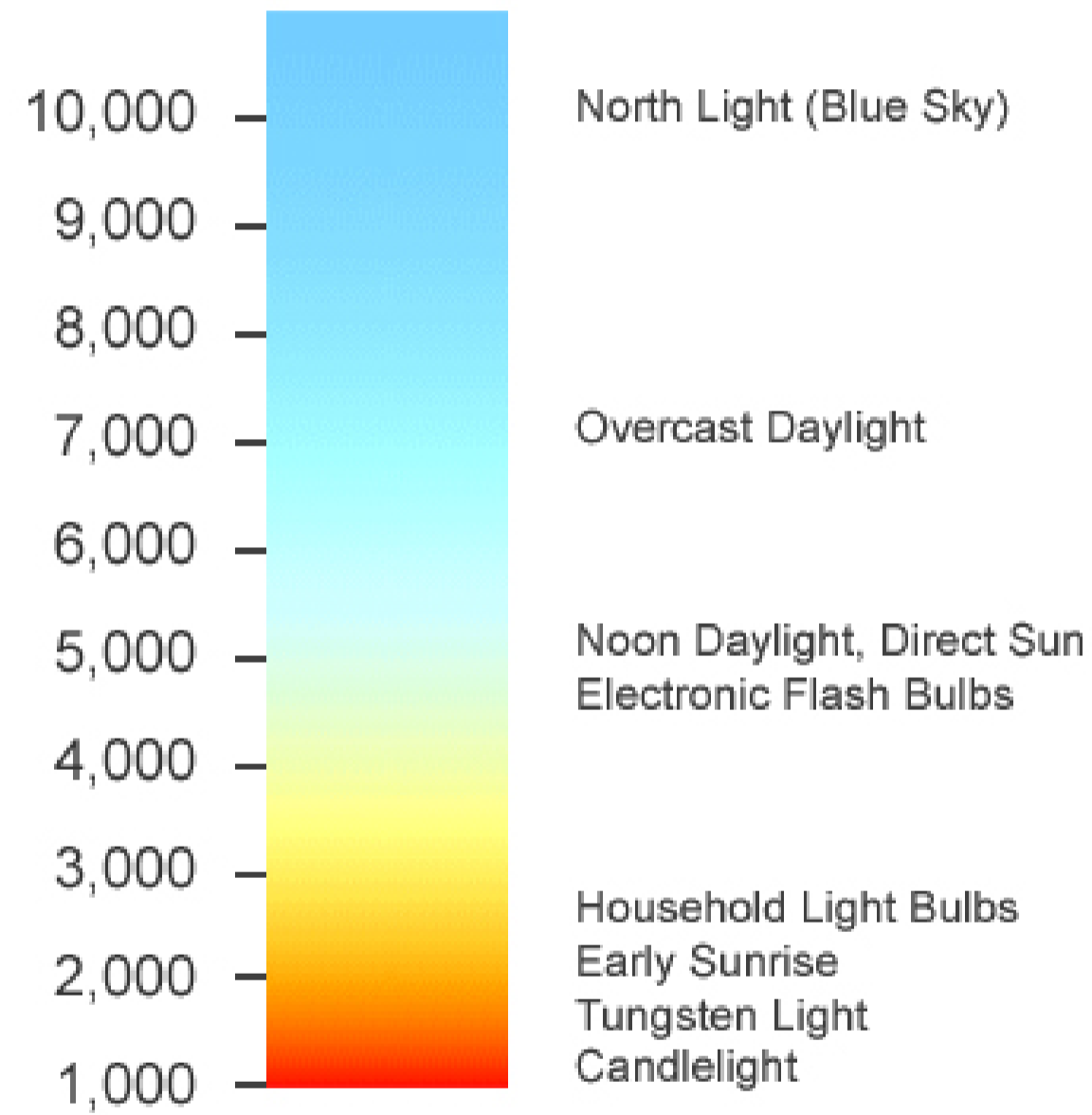
Time of Day & the Color of Light



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

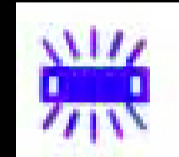
White Balance Controls

AWB

Auto – Camera decides. Works well in most situations



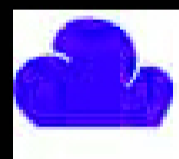
Tungsten – Use indoors. Standard lightbulbs (tungsten) have yellowy cast. “Tungsten” setting adds a little blue to cool color down. Light bulb symbol.



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

Four Characteristics of Light

1. Intensity
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











Side light...*GOOD*



Front light...BAD
(unless soft, diffused)



Back light...GOOD

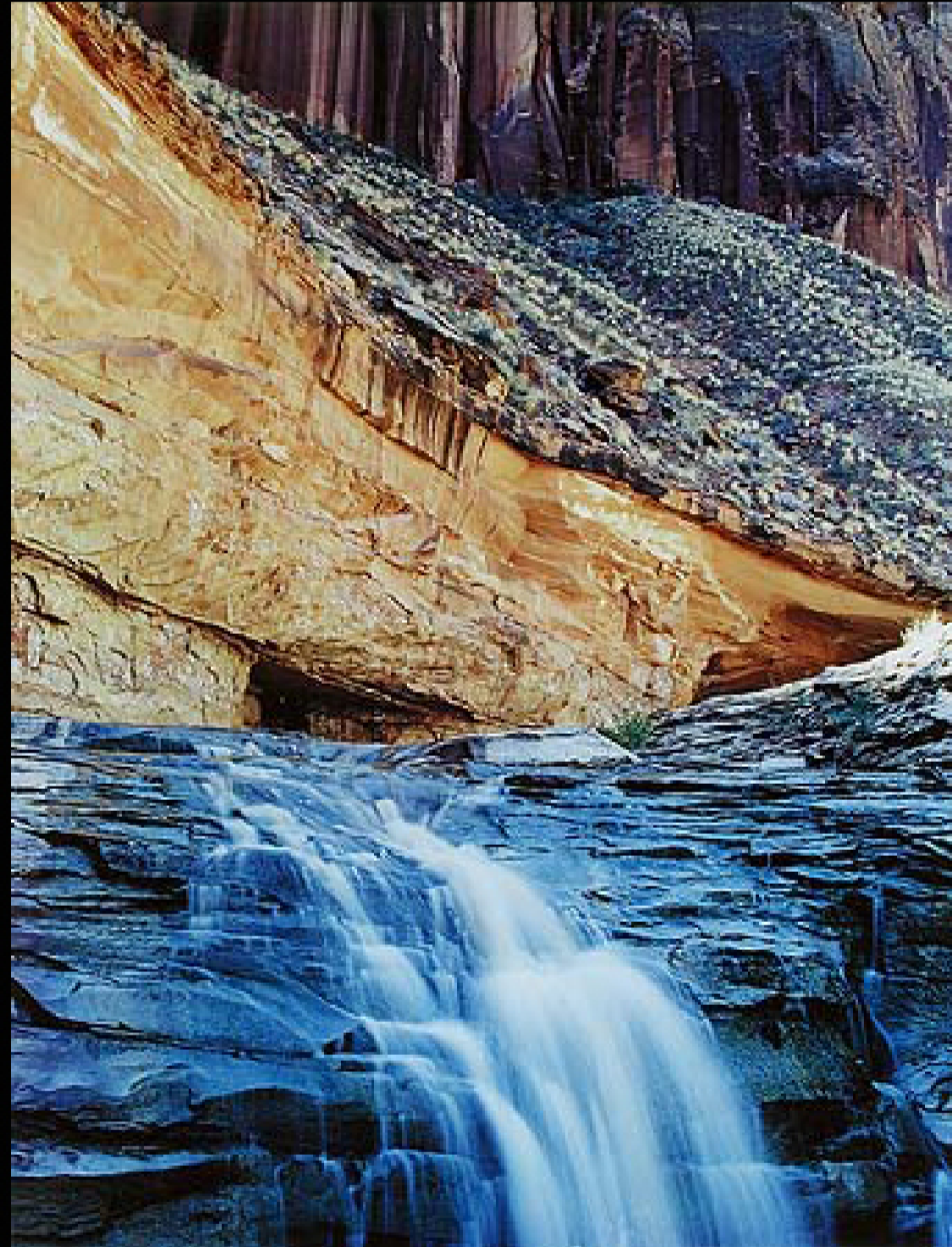


Back lighting

Seeing the Light

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

Shoot the Light (and colors)



Elliot Porter

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

To See the Light

Look for...

- Amount

(Is it bright, dark, in between?)

- Color

(warm/cool, time of day, weather, natural/artificial?)

- Texture

(hard or soft/specular or diffuse?)

- Direction

(Front, back or side lighting?)

- Distribution

(Evenly distributed, smooth gradations or “broken” with hard shadows & highlights?)

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Directional Light



Window Light



Silhouettes



Silhouettes



Contrast Light & Dark





Contrasting Colors



Harmonious Colors



Harmonious Colors



Colors & Shapes



Contrasting Colors/Shapes





Look for the Light

Directional Light

- front, back, side

Backlighting

- silhouettes

Strong Contrast

- light against dark

Contrasting Colors

Harmonious Colors

Shapes, Patterns & Textures

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...)