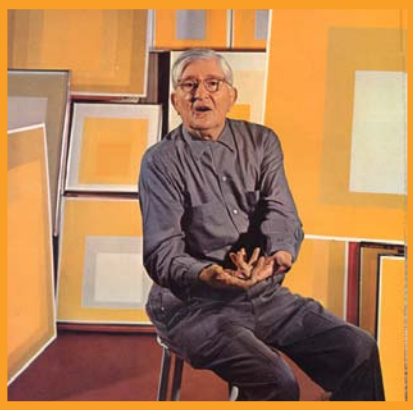
The Studio Of Dick Nelson



Josef Albers

Interaction Of Color

Interaction of Color Handouts and Exercises

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NOTE: These assignments and discoveries are to be done using “The New Color Aid” pack of 314 silk screened color chips available from:
Color Aid Corporation, 37 East 18th Street, New York, NY 10003, (212) 673-5500/5501.

Interaction of Color Phase II

Interaction Of Color: *A Pre-Course Inventory of Color Knowledge*

True/False

___1. Gifted musicians with "perfect pitch" can hear a note, memorize it and then recall it when asked. A similarly talented visual artist can do the same if shown a color.

___2. Color blindness is more common with men than women. ___3. Red is a primary color in pigment.

___4. Infants develop color discrimination some time after value discrimination.

___5. The primary light colors are different from the primary colors in pigment.

___5a. A yellow light is the mixture of red and green light. ___5b. Cyan is a primary color of light.

___6. Magenta is primary red with about 10 percent blue added. ___6b. Tones are grayed hues.

___7. The color of rust contains all three primary colors in varying proportions.

___8. Tints are colors with white added. ___9. Shades possess more chroma than secondary colors.

___10. The color of the shaded side of an object is a mixture of the object's local color plus its complement. The shaded side of a red barn, for example would be a mixture of red and green.

___11. A blue light produces an orange shadow. 11a. Shadows, films and veils are transparent.

___12. A tangerine will appear more the color of an orange in a basket of lemons.

___13. A lemon will appear more green in bowl of bananas. ___13a. Color cannot be seen without light.

___14. Colors lose chroma, or become less intense when mixed with white, black or their complement.

___15. Red, blue violet and green are the secondary colors in pigments.

___16. Colors of equal value appear as the same gray in a black & white photo.

___17. **Color constancy** is a term which explains why we perceive a color to be unchanged although it may appear darker in the shade and brighter in sunlight.

___18. **Simultaneous contrast** is a visual phenomenon in which eye fatigue plays a part.

___19. An Impressionist painting will appear more luminous as the viewing distance decreases.

___20. The French Impressionists created luminosity in color by avoiding toned or grayed pigments.

How many of your answers were based upon ... _____what you know? _____an educated guess? _____winging it?

How many of your answers do you think were correct?_____

Now, having taken this test, do you still feel it's in your best interest to take the course? (No answer, please!)
The answers, according to Nelson, will be provided in class.

Albers Quotes

Color is the most relative medium in art.

Search-trial and error.

Knowledge of so-called facts is replaced with vision - - seeing.

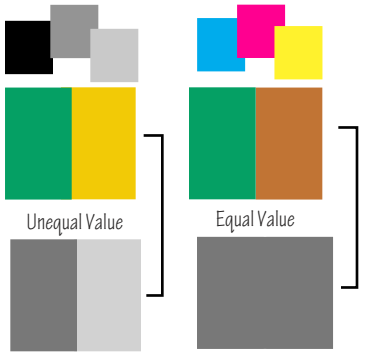
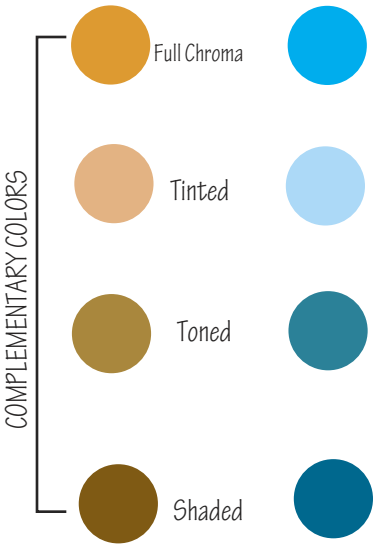
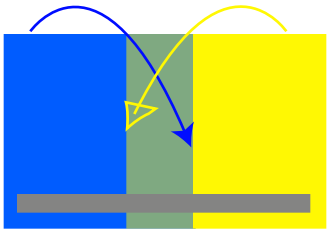
Visual memory is no match for auditory memory.

We almost never see a color in isolation.

Color is relative - some more than others.

Exercises are not self-expressions, decorations, representations, or illustrations, but studies.

Some Color Terms

Term	Definition	Example
Hue	A synonym for color. Red, for example, is a different hue than blue, yellow, orange, etc..	
Value	Qualities of light or dark. Black is the darkest value; white the lightest. Of the three colors here, yellow is the lightest value. Cyan and Magenta are similar in value.	
Equal Value	When two or more different hues possess the same values. If two different hues are equal in value, they would appear as the same gray in a black and white photograph.	
Chroma	The degree of color intensity. Red, for example, has more chroma than pink. Yellow has more chroma than ochre, etc. Black, white and neutral grays possess no chroma.	
Full Chroma	The most intense hues found on the outer rim of the color wheel.	
Tint	White added to a color. In transparent watercolor, tints are achieved by diluting color saturation.	
Tone	Any hue which has been grayed. Tones may be achieved by mixing a color with its complement or with gray. A tone will always be duller than a full chroma hue.	
Shade	Any hue which has been darkened with black. Shading will always produce a darker color.	
Complementary Colors	Colors which are opposite one another on the color wheel. Mixing two complementary colors produce tones. An equal mixture of two full chroma complements produces middle gray.	
Halation	A visual illusion of color and/or value halos produced when a mixture of two colors or values is placed between and adjacent to its parents.	
Vanishing Boundary	When two colors of similar hue and equal value are adjacent, their common boundaries vanish and the eye sees a more luminous mixture of the two original hues. At what distance do the two hues merge into one?	

Halations

Note how the gray line changes color and value as it passes over the three backgrounds. Halations occur on the mixture of blue and yellow along its boarders. A yellowish halo should appear along the blue boarder; a bluish halo along the yellow boarder.

INTERACTION OF COLOR: *An Abridged Version of the Josef Albers Color Course*

Dick Nelson, Teacher

Course Description: *"The aim of such a study is to develop--through experience--by trial and error--an eye for color. This means, specifically, seeing color action as well as feeling color relatedness." Albers*

Assignment #1: One Color Appears as Two.
The object of the assignment is to see how different one color might appear when placed on different colored grounds. The colored figures on each of the two background colors are the same hue.

Assignment #2: One Color Appears As Two, Looking Like Reversed Grounds.
The object of the assignment is to make the figure on one ground appear to be the same color as the adjacent ground color.

Assignment #3: Two Different Colors Look Alike, or Subtraction of Color.
In this study, four different colors are used, but there appears to be only three. The two figures should appear to be the same color, although they are quite different.

Assignment #4: Illusion of Transparency
Although all of the colors are opaque, the problem is to create the illusion that they are transparent. The degree of transparency can be dictated by the level of color or value contrast used.

Assignment #5: Illusion of a Transparent film.
This is basically the same problem as the Illusion of Transparency, but this time the transparency relates to the actual phenomena of how a colored film effects a given set of colors.

Assignment #6: Illusion of a Veil.
Similar to the previous illusion of a transparent film, this study creates the illusion of a piece of tracing paper, or semi-transparent white veil placed over a set of colors.

Assignment #6: The Illusion of Volume Color
Colors and values are modified by transparent films or veils. If we think of atmosphere as an infinite layering of veils or films, the phenomena of volume color can be realized. In other words, as a given color is immersed in a colored atmosphere, it takes on the color of that atmosphere.

Assignment #7: The Illusion of White Light
This study deals with the visual phenomena of how a white light modifies color. It may be a spot light playing on a set of colors, a shadow cast across a set of colors, or a multi-colored form illuminated by a white light.

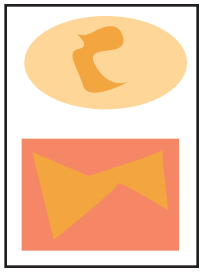
Assignment #8: The Illusion of Colored Light
This study is similar to the White Light problem, but in this case the light source is not white, but colored. This means that the shadow color takes on some of the comple-mentary hues of the light source plus any ambient light which may be present.

Assignment #9: The Illusion of Translucency
Semi-transparent materials will project light if back-lighted. We many other similar materials. This study creates the illusion of such translucency.

Interaction of Color: Some Tips On How To Approach An Assignment

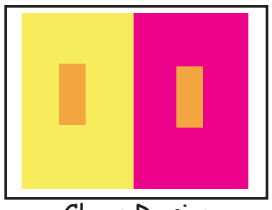
Tip 1: This is an exercise; not a work of art. Be willing to take some risks without fear of failure.

Tip 2: Communicate visually, eliminating all but the essential message. Maintain a simple format which says what you mean.



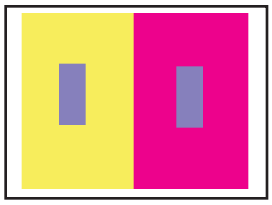
Confusing Design

The author of this design confuses the issue by asking the viewer to compare vertically rather than horizontally. (Our eyes are set in a horizontal alignment). If the purpose is to demonstrate how different the same color (orange) appears on different backgrounds, why ask the viewer to compare shapes and sizes as well? The example on the right presents a simple, straight forward comparison.



Clear Design

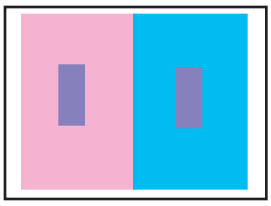
Tip 3: This course is about relationships. All colors used in a single presentation must be related. In the example above, orange is related to both backgrounds, that is it is a mixture of the two parents. When orange is surrounded by yellow, it appears more like its other parent, magenta and visa-versa.



Unrelated Colors

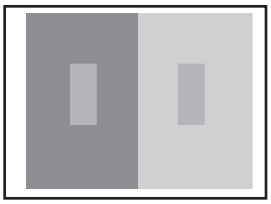
Here's an example where the color to be changed has no relationship with the yellow parent. (It contains no yellow.)

In the example to the right, although the purple appears more red when on a blue ground, what is wrong with these relationships?



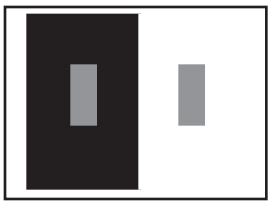
Answer: Although the child (small purples) is a mixture of the two background hues, it's value is darker than either parent. It's value should be between that of its parents.

Tip 4: When push comes to shove... Unlike an answer in a math problem, there is no single answer here. If the final resultworks, but fails to solicit viewer awe, some shoving is in order.



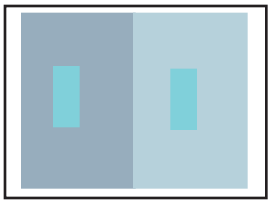
A push.

Here, on the left, is an example of making the same gray appear different, but why not shove it to its full potential by using the greatest contrast possible, or black and white grounds.



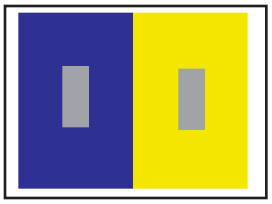
A shove!

Strongest Values = Black & white
Strongest Hues = Primaries
Weaker Values = Grays
Weaker Hues = Secondary colors.
Weakest Hues = Tints, Shades & Tones.
Black, white and gray = No hue.



Weak parents & strong child.

In this color example, the weak, background colors have little effect on the brighter child. Solution? Weak will change, but strong will resist!



Strong parents & weak child!

These parents are strong in both hue and value. Primary yellow and it's complementary color purple, greatly effect both value and color of the gray child.

Tip 5: Expect anxiety and eye fatigue. True learning requires acceptance of a new belief. This has nothing to do with remembering facts, but rather seeing and thinking differently. No one accepts a new way of seeing or thinking without a fight. Eye fatigue can be minimized with by taking short but frequent breaks, using good light, and minimizing visual distraction.

Critique Guide

1. Find the work which most deceives the eye.

2. What makes it work?

   a. 

   contrast.

   b. *Hue* contrast.

   c. Dominant parent/s.

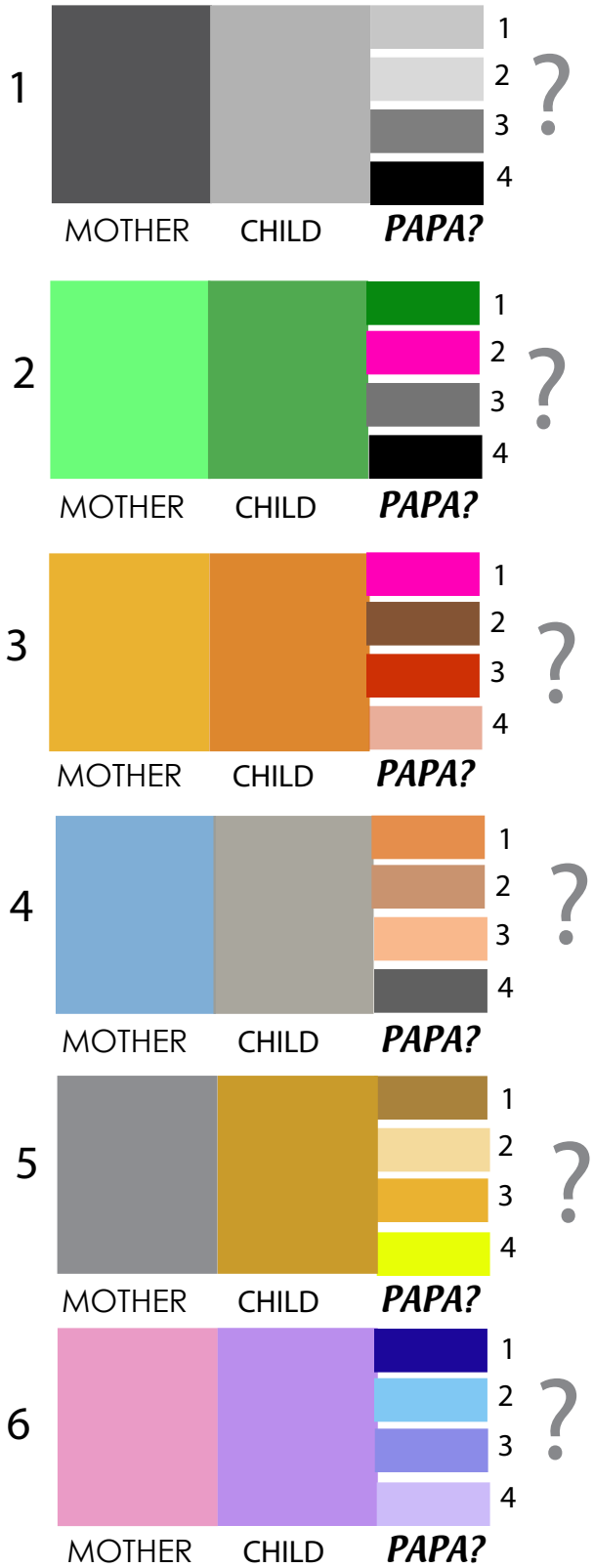
   d. The child is related to both parent colors. (Parental hues are present proportionally in the child.)

   e. When the child is next to one parent, it resembles the other parent (halation).

3. Could it be even more deceiving? If so, how?

Find Dad

Each of the following families have a Mother, Child and four possible fathers. Identify the father/s of each child by recognizing that the child must be a mixture of the two parents.



Note: *The child may possess different percentages of the missing parent's hue and value.*
Example: *A gray may be the child of black and white, or dark gray and white, or dark gray and light gray, etc.*

Answers

1. Dad could be: #1 or #2.
Why? A small amount of white would produce a lighter gray. #3 and #4 are both darker than the child. How could this be?

2. Dad could be: All
Why? A small amount of the shade of green #1 would deepen the value and gray it. The deep red/violet is the complement of green and would produce the same results if added to the bright green in a diluted form. Both dark gray and black would produce equal results, but would have to be added in different amounts. Dark gray, placed next to its offspring would produce the best balation because it is most like the child in value and hue.

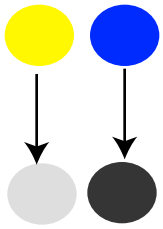
3. Dad could be: #1 or #3.
Why? Adding some magenta #1 to yellow/orange will produce a redder orange. A red/orange #3 would produce the same results. It would also produce the best balation. #2 contains some cyan which is not evident in the child. #4 contains some white which is not evident in the child.

4. Dad could be: #1 or #2.
Why? Since the mother and child are the same value, the father must not be lighter or darker than the child. Both #1 and #2 are the same value as the child and mother and, as complements of blue, will produce a grayed child. #3 is the correct hue, but is too tinted to be the parent. #4 is too dark and neutral to change blue to light gray.

5. Dad could be: #3.
Why? #1 is darker in value and has less chroma than the child. If the one parent is gray, the other parent must have more chroma (more intense color than either its child or the mother.)
#2 is a tint or orange. The child has no white. #4 has the chroma, but the hue has no magenta in it. The child contains yellow, magenta and gray, so its papa must contain both magenta and yellow.

6. Dad could be: #3 .
Why? They are correct in both hue and value. #3 could also be a child of #4. #1 contains black. #2 is too light #4 is lighter than both parents

INTERACTION OF VALUE

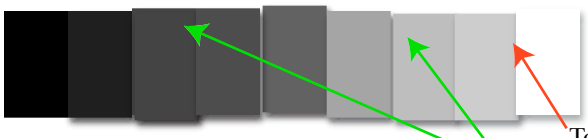


Yellow and Blue
translate to these grays.

*In the visual arts, the word **value** refers to the lightness or darkness of color. For example, this yellow swatch is lighter in value than the blue swatch. Viewing both colors in black and white, the yellow appears as a light gray. while the blue appears as a dark gray.*

Exercise 1. Pull all of the grays out of your color pack and create a value scale from black to white. Use the format shown here.  etc.

Next, create a nine card value scale which includes black and white. Here's where value discrimination becomes crucial for the intervals among the eight have to be equal. Note in the example how the intervals are not equal.



Too dissimilar

Too similar

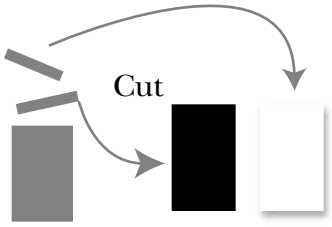
An example of uneven intervals.

Compare results with other members of the class and make any changes agreed upon before the final judgment is made by the GRAND CRITIC!

An example of even intervals

Exercise 2. What visual phenomenon occurs along the boarders of the different values?_____

_____



Exercise 3. Remove the middle value from your value scale. Cut two narrow strips from this gray. Place one on the black chip; the other on the white chip. What is observed?

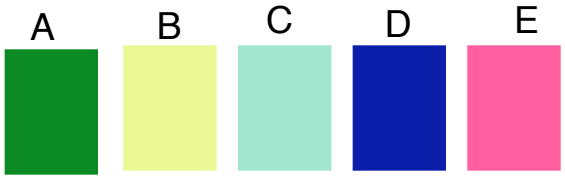
_____

Exercise 4. Cover about a third of the black chip with the middle gray you have just cut. Cover this gray with the white chip. Now, slowly slide the white chip away from the black to reveal the gray below. Observe the visual phenomenon that occurs on the borders of the gray and white and the gray and black. What causes this to occur? What is the relationship of the three chips? Which is the child?

_____

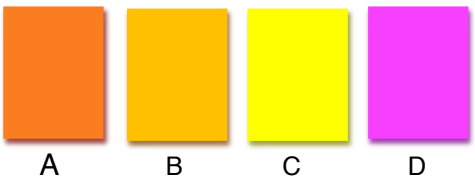
_____

Exercise 5. Place these five hues in a numerical order of their values, giving the lightest value number 1: the darkest, number 5.



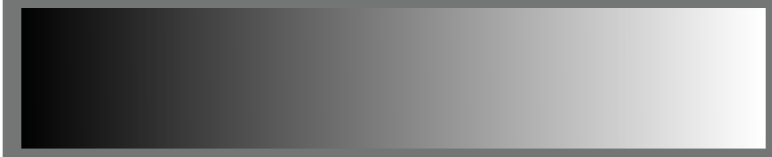
1.___ 2.___ 3.___ 4.___ 5.___

Exercise 6. Who are the parents in this color array?____&____



Exercise 7. Which child favors which parent?

Child____favors parent_____. Child_____favors parent____.



No Chroma

VALUE SCALE
A color may be light, dark or somewhere in between.

Full Chroma

HUE SCALE
Colors may vary in hue. For example, its redness vs. its orangeness.

Full Chroma To No Chroma

TINTING
Color chroma is reduced and lightened by adding white.

No Chroma to Full Chroma

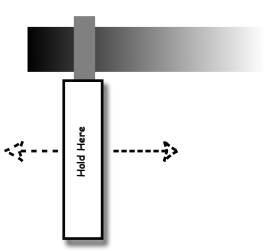
SHADING
Color chroma is reduced and darkened by adding black.

Full Chroma To No Chroma To Full Chroma

TONING
*Color chroma is reduced and grayed by mixing complementary colors.**

Cut out these movable wands with an Xacto knife so that no white edges are showing around the colored portions.

Starting with the gray wand, slide it over each of the color gradations above. How does each gradation effect the hue and value of the wand?



**A complementary color is any color which lies opposite another on the color wheel. Magenta is, for example, the complement of green; blue the complement or orange, etc.*

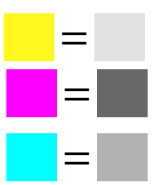
We speak of color in terms of its...

HUE & VALUE

Knowing and using the color terms identified here, may help learning by having everyone speaking the same language. Ask anyone, for example, the meaning of the word "tone" and be treated to a dozen or more different definitions. (And most are incorrect.)

Chroma refers to the intensity or amount of color saturation. For example, all of the colors in the "Hue Scale" are at full intensity, or at full saturation. The red-orange which has been *tinted*, has lost its *chroma* or intensity, becoming less saturated as more white is added.

Color may be light or dark in **Value**, or anything in between. Yellow, for example, is lighter in *value* than the same saturation of magenta.



Tinted colors are lighter in *value*, while shaded colors are darker *values* of the same *hue*. When we shade or tint a color, its hue remains the same, but its *value* and *chroma* change.

Shades are hues reduced in chroma by adding black.

Saturated hues can also be **Toned** or grayed by either adding gray or its complement. Earth colors, for example are **Tones.**

OBSERVATION QUESTIONS

1. Against which background did you observe the greatest value change with the gray wand?

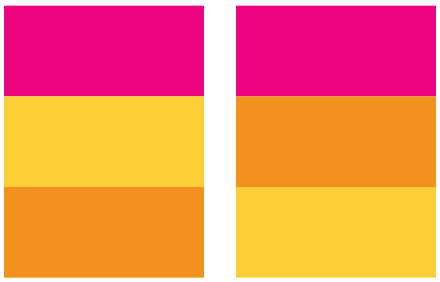
2. Which wand produced the greatest hue change as it moved over the various backgrounds? Why?

3. Which wand produced a value change, but no variation in hue? Why?

HALATION: What is it? How can it be created?

a 1 b

The two middle grays are the same in both "a" and "b". Do they appear to be the same? If not, how do they differ? Why do they appear different?

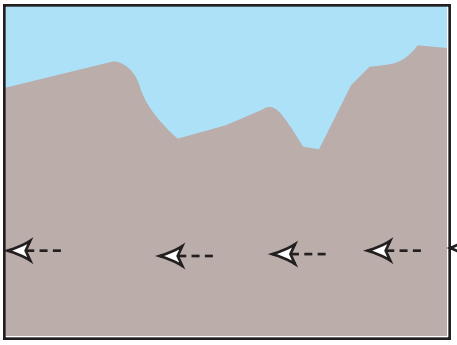


a 2 b

Both "A" and "B" have the same three colors, but in what way has the different arrangements changed the appearance of the orange?

a 3 b

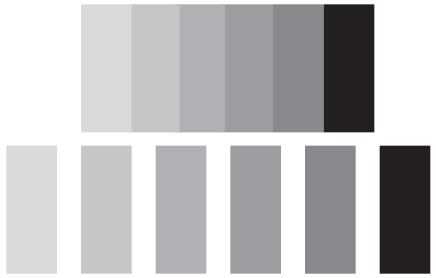
Stare at grays in each of these designs. How does the arrangement change the appearance of the grays? How does the arrangement change the appearance of the greens and purples? Why the diffence?



Observe what happens to these colors and those of the image to the right as the two are joined as one composition.

Making colors more luminous

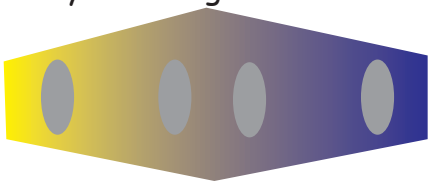
What happens to the various forms which suggest mountain ridges? Why?



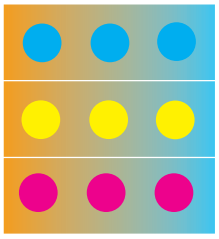
These two rows contain identical grays. How have the different arrangements changed their appearance?

Seeing is not necessarily believing!

All of these cirlces are the same size and identical grays. If you doubt it, isolate them with white. Why does only the middle circle appear darker on the left and lighter on the right?

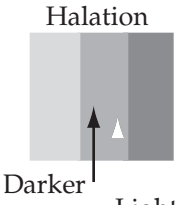


All of these ellipses are the same gray and size. Which appears to be the smallest? Which appears lightest? What might be causing this illusion?



Why don't these circles change?

Answer: They are primary colors.



A DEFINITION

Halations are optical illusions. They appear as halos (see example) and give the illusion of a gradation where, in fact, none exists.

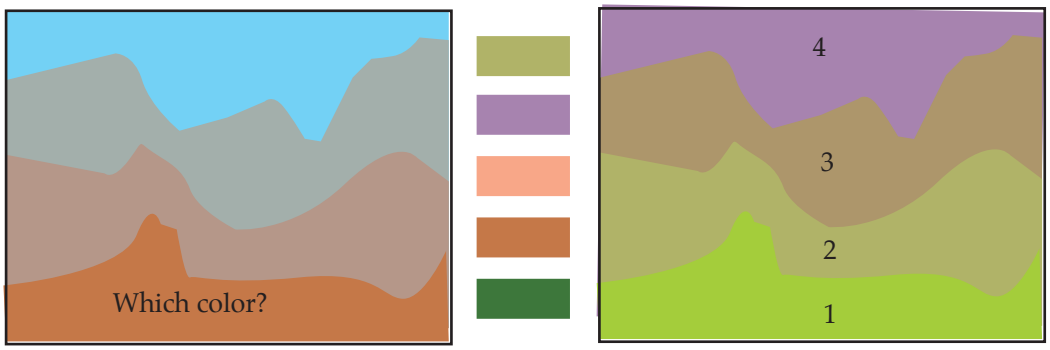
What have we learned?

Halation, or halo...

___a. is a visual illusion.
___b. results when any color is placed between two other colors.
___c. occurs when two related colors are placed side-by-side.
___d. results when there is a color and/or value relationship established which resembles a family.
___e. works best when a mixture of two parent colors is placed between the parents.
___f. produces color luminosity.
___g. cannot be found in nature.
___h. is enhanced by eye fatigue.
___i. requires a minimum of three colors to produce the phenomenon.
___j. will not occur when black is the placed between white and gray.
___k. is greatest at the center of the color effected.
___l. will result as many times as there are related colors placed in related order.
___m. will not occur on a white swatch or black swatch.
___n. will not occur within a primary color.

Answers: a. yes. b. no. c. yes/no. d. yes. e. yes. f. yes. g. no. h. yes. i. yes/no. j. yes. k. no. l. yes. m. yes. n. yes.

One Answer: *Halation or a halo effect is an optical illusion which produces a glow or airbrushed effect along the border of a neighboring color. Note how the middle gray in illus. #1A appears to darken as it approaches the light gray and lighten as it approaches the dark gray. No such halation occurs in illustration "B". Why? Because the middle gray is not the offspring of the other two. A child should be a mixture of its parents. Similar halation are evident in illus.#2B and #3B.*



Transparency
Films, Veils, Volume Color & Atmosphere

Transparency Illusions

VISUAL PHENOMENA: . The visual phenomena which bombard our senses are generally received without much thought as to why we see an image as round, light, colored, back lighted, glossy, or translucent. On the other hand, artists, seeking to recreate this phenomena, must first see the phenomena, understand why we see it as we do, and then find the means to communicate this information visually through any number of mediums.

The next series of exercises deal with the visual phenomenon of transparency. How do we perceive the degree of transparency found in a given image or space? What strategies must we develop in order to recreate this phenomenon in our medium?

Our answers will be initially based upon objective observation of the phenomenon. This requires seeing shape, value, and color before we recognize that these visual elements add up to a particular subject matter such as glass, water, etc. Compare the blue and yellow-green chips in the "True Film" example in Fig.1. Which appears to be a trans-parent film? Why?

See answer

Exercise 1A. The Illusion Of A False Transparent Film. Using 3 related pieces of color-aid paper, create the illusion of a colored transparent film, casually placed over both an opaque colored paper and a background.

- Step 1. Select two colors. Find a third color which is a mixture of the first two. Check with your fellow students and teacher.
- Step 2. Create a format which presents an visual illusion of transparency (See examples of false and real transparent films)
- Step 3. Cut out shapes and glue with rubber cement to backing.
- Step 4. Critique with critique group.
- Step 5. Class Critique.
- Helpful Hint: Recognize that the illusion of transparency requires consistency. If a colored film is transparent on one surface, it will be equally transparent on all surfaces. In the examples of "Real and False Films", which rectangles are transparent? How do you know?

What's the difference between the two films?

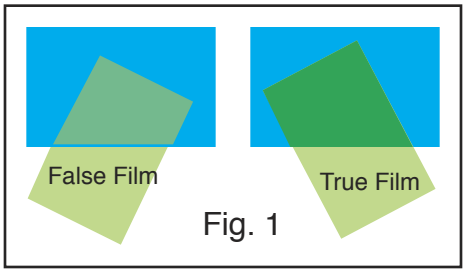


Fig. 1

1B. Create the illusion of a *True Film*.

Exercise 2. Creating the illusion of a *White Veil.* Using the same format and steps as Exercise 1, create the illusion of a piece of tracing paper super-imposed over at least two other colors. Refer to Fig. 2.

Fig. 2

Exercise 3. The Illusion Of Liquid Immersion. Imagine what four white index cards would appear to be if immersed at varying depths in a colored liquid. Recreate this phenomenon in Color-aid paper or watercolors, using a format similar to that of Fig. 3.

Exercise 4. The Illusion Of A White Atmosphere. Using the same format as Exercise 3, create the illusion of four shapes of the same color, placed in varying depths of a white atmosphere or haze. Refer to Fig. 4.

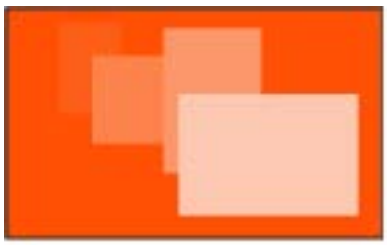


Fig. 3

If a color is transparent, we'll see varying amounts of any color over which it is placed. Therefore, we should see some whiteness in the chip which is transparent. The yellow-green chip is a tinted hue, hence the film.

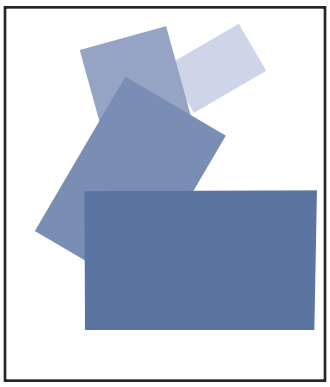
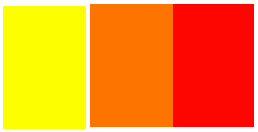


Fig. 4

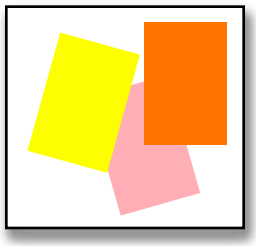
Creating The Illusion: Steps to consider when making...

An illusion of a film.

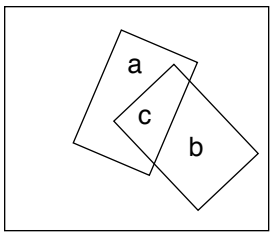
Step 1. Select three related colors from the color pack. (Father, mother and child)
Step 2. Select a background which is either white or colored card stock large enough to accommodate the design.
Step 3. Design the format. Use a index card template or one of choice as your model. Place it on a piece of paper and trace around it. Place the card on the first outline at a casual angle and trace it. Identify each shape created with a letter.
Step 4. Using the designed format, cut out each shape.
Step 5. Place the cut out shape on its matching color,
Step 6. Assemble all the pieces and glue to background.



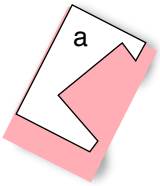
Step 1.
All three of these colors relate. Orange must be the child, for it is a mixture of red and yellow.



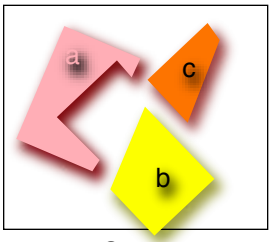
Step 2.
If you choose white be sure that at least one parent has white in it. For the sake of this example, white has been added to the red parent.



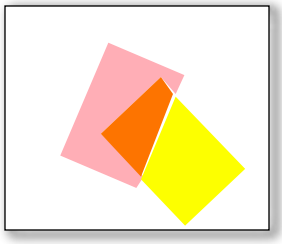
Step 3.



Step 4
Pattern "a" is placed on pink and traced onto pink with pencil.



Step 5.
Each shape is cut out.



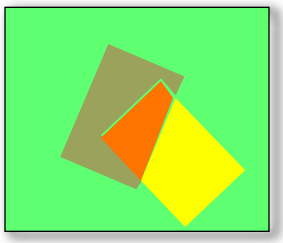
Step 6

Pieces are glued to white background to complete the illusion of a red film on yellow and white. Note that the red film turns to pink when placed on the white ground. Why? it's transparent, that's why! And if it is transparent, we should be able to see some whiteness. Right?

IMPORTANT !

Don't overlook the background color and value when choosing your color chips! Why?

Well, if a film has transparency, then it will be transparent over any color it covers.



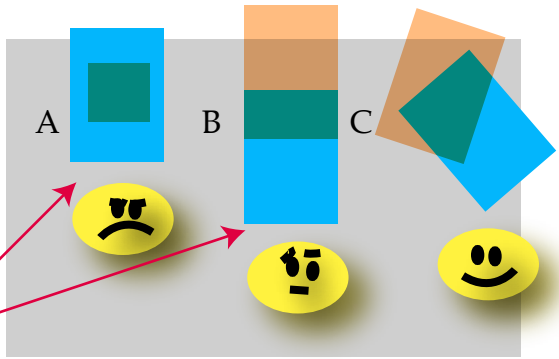
Here are the same colors placed on a green background. Note that red is now a mixture of red and green or brown. Yellow and orange are unaffected by the green because they're to be viewed as opaque. Red must be the film, since it has been modified by the green ground.

Creating The Illusion Of A Film: *Some things to consider*

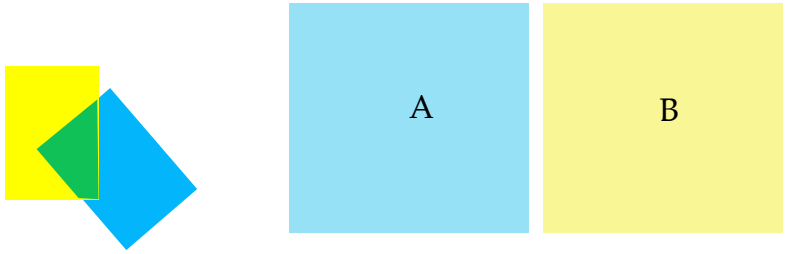
Convincing the viewer that he is viewing transparency when in fact he is looking at opaque paper, requires the following:

1. The *hue* and *value* relationships must be correct.

2. The format must avoid ambiguity.

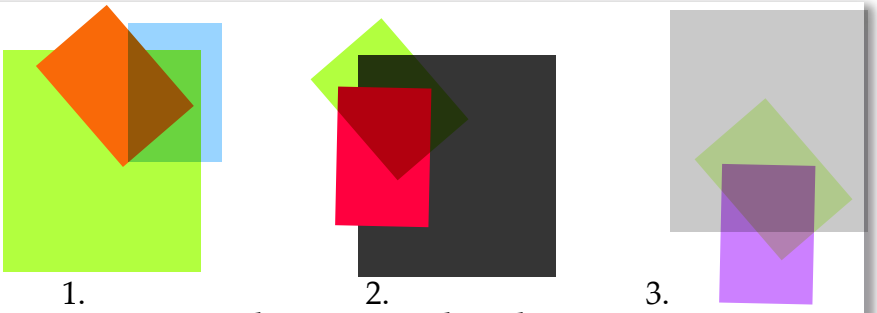


All three of these show how an orange film modifies the color it covers. Why is format "C" the most effective illusion; "A" the worst?
What tells us the orange chip is transparent?
What tells us the blue is opaque?
Could the gray background be transparent?
How do we know?

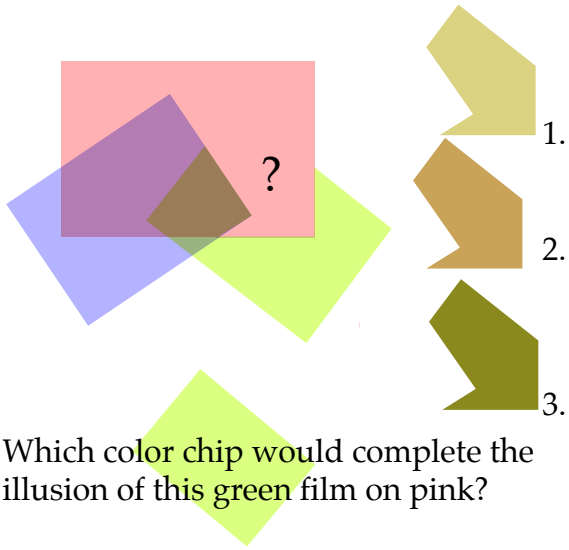


Which background color would you choose to make the blue chip appear as a transparent Film, but the yellow as opaque? Which would make the yellow appear transparent?

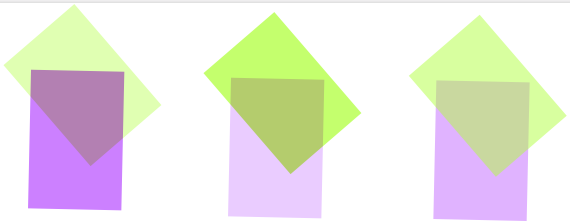
What's wrong with this format?



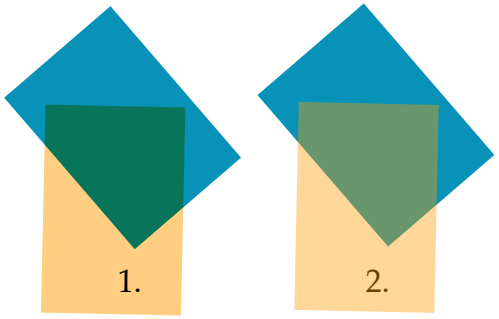
Find the film in each of these examples.



Which color chip would complete the illusion of this green film on pink?



Of the six color swatches, which could be a film?
Why? Which film appears the most transparent?
Which color is the child in this format?
Where can you find halations here?
In which pair is the halation most vivid?



Which is an example of a false film? Why?
Which produces the greater halation? Why?

Light

Light & Color

Match the colored strips on the left with the strip on the right which is the same color seen in room without any light.

1 2 3 4

A B C D

Answer: All four colors on the left would appear as "a", for without light there would be no color.

LIGHT IS ADDITIVE

Light may be white or colored. Light is *additive*. When two or more colored lights are mixed, a lighter mixture results. White light results from combining all three primary colors of light at high intensity. Light primaries are the secondary colors of pigment. A rainbow is white light refracted by rain drops.

PIGMENT IS SUBTRACTIVE

Mixing the primary pigments in equal amounts produces black. Pigment is considered *subtractive*, for as more pigments are mixed together (excluding white), darker hues result. Black is the presence of all colors in pigment.

CREATING THE ILLUSION OF LIGHT AND SHADE

In order to create the illusion of light falling across different colors and values, artists must recognize how light modifies color. When we say that an apple is red, we refer to its *local color* of redness.

This local color red exists only in our minds, for this red will change with every change in lighting. The red we perceive in candlelight, varies considerably from the same red seen under florescent light, daylight, etc. The reason we perceive it as the same red is that all of the surrounding colors change as well. We refer to such recognition as *color constancy.*

COLOR PERCEPTION

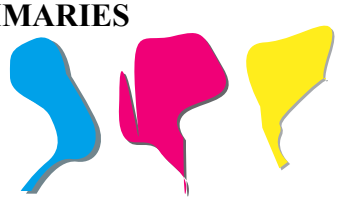
We perceive color in objects because those objects have a pigment which absorbes some light rays and reflects those we see. A yellow ball, for example, is perceived as yellow because its pigmentation reflects that color. Darker colors will absorb more light, because they have more pigmentation with which to absorb light.

LIGHT PRIMARIES

RED ORANGE
GREEN
BLUE/VIOLET

PIGMENT PRIMARIES

CYAN
MAGENTA
YELLOW



Refer to the illustration below which shows what happens when a white light illuminates a portion of a color. Unlike a white veil which tints only the color it covers, a white light will produce a shade or gray film over those portions of the color which are not in the light. Generally, the lighted surface will move from a shade to more chroma where illumination increases. If the white light is bright enough, it could even tint the color it illuminates.

LOCAL COLOR (These colors exist only in the mind. We only see them as they are modified by light and shade.)

WHITE LIGHT

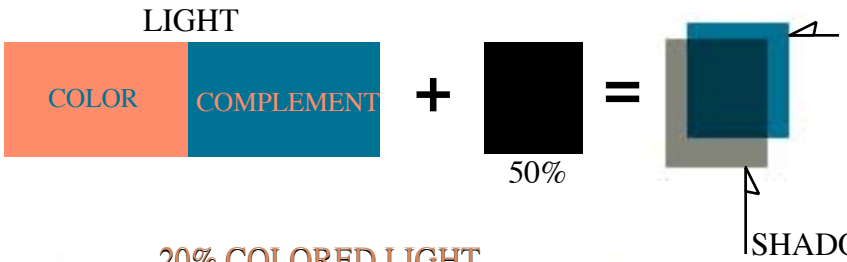
The local color under a brilliant white light may produce a tinted hue.

50% BLACK SHADING: *The percentage is arbitrary. It depends on light intensity.*

COLORED LIGHT

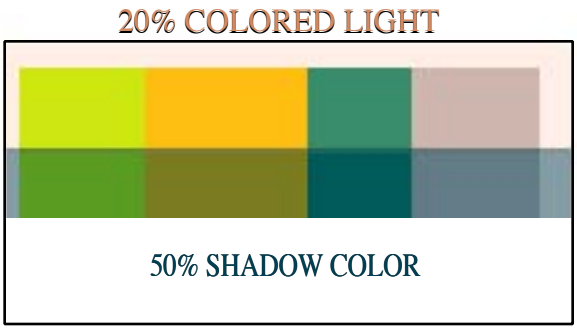
In white light, shadows are transparent black or the *complement* of white. In colored light, shadows work the same way, that is they will be the *complementary* color of the light source. These shadows, as with black shadows are similar to transparent films placed over colors. Any color will be modified equally when this transparent film is overlayed.

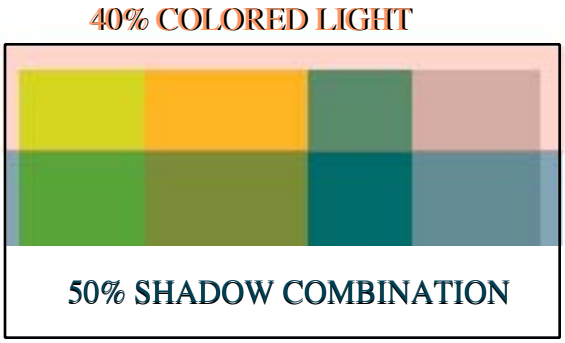
The examples below continue the studies begun on the previous page, but colored light has replaced white light. Where white light separates and emphasizes the differences among the hues, colored light unites dissimilar hues under common colors. In these examples, the separate colors all take on an amber hue in the light. They are similarly united in the shadows by a common hue. The artist need not be concerned about what color to paint the shadows, for they are all modified equally by a single transparent film of color.



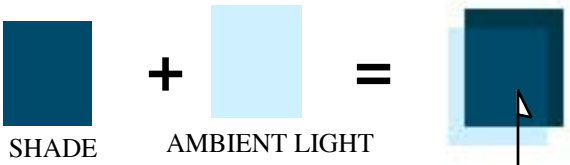
COMPLEMENT OF LIGHT SOURCE: This color plus varying percentages of black will produce the shadow color.

SHADOW COLOR
Shadows are transparent films. Colored lights produce shadows which are generally a mixture of their complement plus black. The percentage of black is based on light intensity.





AMBIENT LIGHT: Ambient light is any illumination which is not a direct light. The most common ambient light is that produced by the blue sky. We live in a dome of ambient light or sky. Realizing its influence on colors which are not in direct light, and adding a percentage of that hue to the shadow color, will create an even richer and technically more accurate cast shadow.



OBSERVE THE FOLLOWING:

1. Compare how each color is modified by the color and intensity of the direct light. Note, for example, how the yellow green becomes duller in amber light. Orange, on the other hand, becomes more intense.
2. What happens to neutral gray as it is placed in colored light?
3. Did the dark, cool green brighten or dull under amber light?
4. Note which shades are dulled and which are intensified. Why?
5. Note that there is no white in the two examples in colored light. Why?

Light

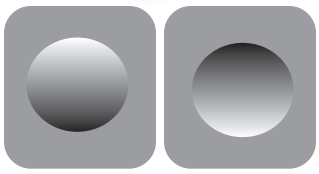
We see form, values and color because of

1. **Its Function**

a. It illuminates form and surfaces.

b. It defines form and surfaces.

c. It modifies form and surfaces.



Concave or Convex?
Since most forms are lit from above, we are conditioned to perceive them accordingly.

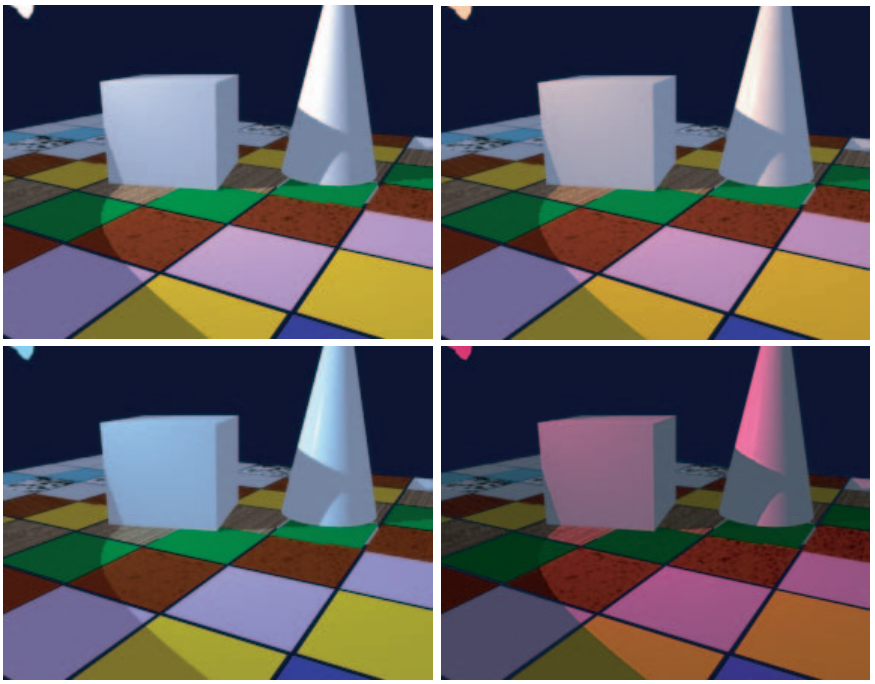
2. **Its Properties:** Light is additive. The more light you mix, the brighter or whiter the illumination. In Light, the Primary colors are the secondary colors of pigment. They are: Red-orange, green and blue-violet. As with pigments, secondary colors in light are produced by mixing two primaries. For example, red-orange and green produce yellow. Blue-violet mixed with red produces magenta. Blue is the mixture of blue-violet and green.

   Pigment, on the other hand is subtractive. The more colors you mix, the darker or blacker the mixture. The Primary colors of pigment are yellow, cyan and magenta.

3. **Its Variables:**
   A. Intensity: The brighter the light, the greater the contrasts between highlights and shadows.

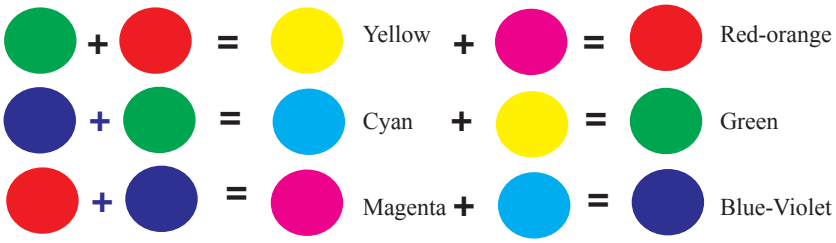
   B. Source: The direction from which the light comes, determines the shapes of an object's lights and shadows. *Primary* light sources can also produce secondary, or reflected lights, depending on the environment in which an illuminated form exists. Light rays radiate from the source in an infinite number of straight lines. The brightest point on an illuminated form is where a ray of light strikes it at a 90 degree angle. *Reflective* and *ambient* light modifies the value and color of shaded surfaces and cast shadows. A principle source of *ambient* light is the sky.

   C. Color: Most natural light is white, or a mixture of all colors. Atmosphere will change this white light to warmer hues as the sun moves closer to the horizon. Early morning or evening light will vary from reds to yellows of varying color saturation. Since the color of shadows are the complementary color of the light, an orange light, for example, will generate a blue shadow. At high noon, such cool shadows can also be attributed to ambient or reflected light generated by a bright blue sky.



These geometric forms and colors are illuminated by the light, a portion of which is visible in the upper left corner. Note how each light color modifies both the object and shadow colors. White light casts a black or gray shadow. Colored lights create shadows which are their complement (Red light creates a greenish shadow). These shadows are further modified by the ambient or surrounding light color. Although the cube and cone illuminated by a blue light appear blue, we perceive them as white. Why? Because every color in the scene has been modified by the blue. creating a **color constancy.**

Color Mixing in Light And In Pigment



Light Primaries OR Pigment Secondaries

Pigment Primaries OR Light Secondaries

Some Ideas On Creating The Illusion Of Light & Shade

Cast shadow in white light = A transparent black film.

Cast shadow plus ambient light.

Color pack sorting by hue and chroma.

Transposing colors to shades.

Five colors on common black

ASSIGNMENT: Creat an illusion of different colors in white light and shade.

Step#1: Sort pack by hue, shades, tints and tones.

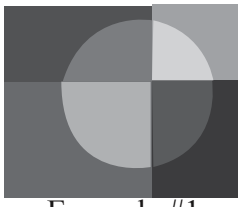
Step#2: Using black as the common parent, find the child of black and each of the other hues.

Step#3: Arrange colors with their respective shade and compare value steps.

Step #4: Design format.

Step #5: Cut and paste up design using formats suggested on hand-out "Lights & Shadows".

Lights & Shadows: Creating The Illusion



Example #1

Example #2

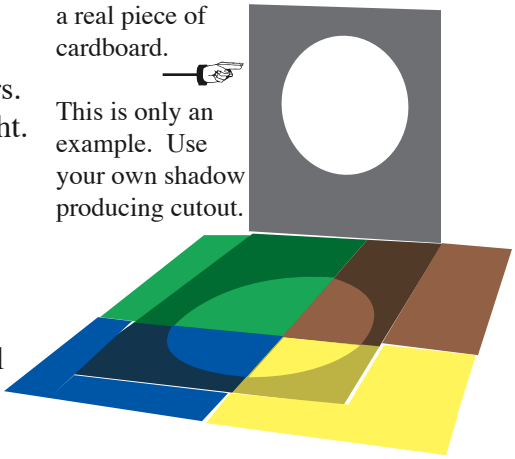
Example #3

We know that films and veils transpose hues and values. A yellow hue viewed through a blue film, for example, will appear green. This green will be darker than both the yellow color and the blue film. This same yellow viewed through a white veil will appear as a tint of the yellow hue. This whiter yellow will be lighter than the original yellow. And, should either the film or veil fall over two or more colors, all of the modified colors will be transposed equally in both value and hue (with minor deviations).

In what way is the illusion of light and shade similar to that of films and veils? In what way do they differ? (See answers below.)

Note: This is a real piece of cardboard.

This is only an example. Use your own shadow producing cutout.



Example #4

Exercise #1: Create the illusion of a white light on a set of different colors.
1. View a set of randomly selected colors under a condition of a white light. Refer to Example #4.
2. Create a visual illusion of this phenomenon with Color-aid paper. This illusion can be heightened by placing an actual cutout piece of cardboard on the illusion. An alternative format might be similar to that seen in Example #5.
Procedure: Pick out three papers for each color. The first will be the local color. The second will be that color under a white light. The third will be that color in shade. Do not use the local color in the final design.

Exercise #2: Create the illusion of a colored light on a set of different colors.
1. As with the previous exercise with white light, view the same set of colors, or a new selection under a common colored light. The color of the light is optional.
2. Create a visual illusion in a format of your choosing. See Example #3.
Procedure: Same as Exercise #1.

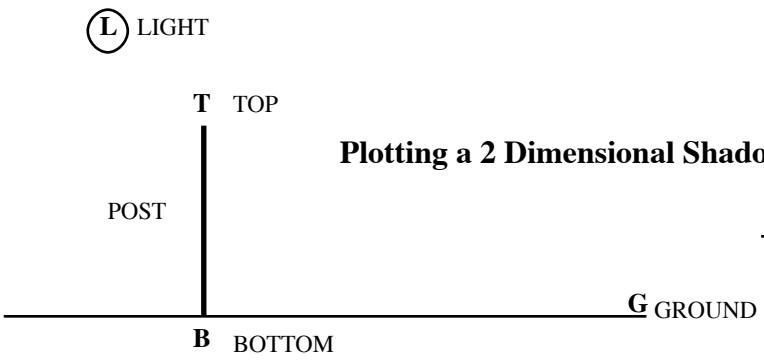
Some Helpful Hints: If you are creating an illusion similar to that in Example #4, first cut out the actual image that is creating the shadow. Place that image on a set of colored papers and shine a white light from an angle which throws a shadow across all four hues. Place a piece of tracing paper over the colors and trace the both the shape of the actual cast shadow and the shape of the colors it covers. Use this drawing as your template for cutting your paper shapes.

Example #5

Note: The value contrast must remain the same for all colors in order to maintain the illusion that all colors are under the same light. Even the gray shadow maintains this contrast.

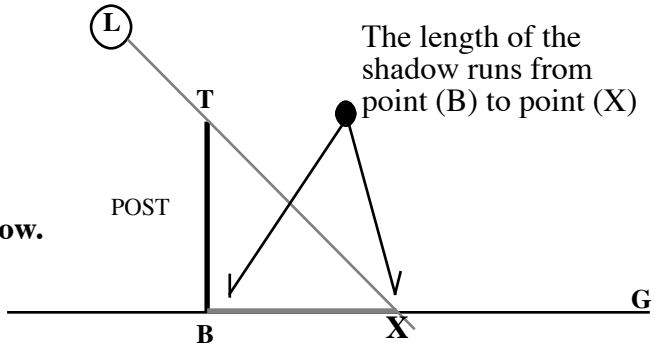
Answers: Light and shadows are similar to films and veils in the following ways: 1. When any color is illuminated by a light, it will always appear lighter or tinted (veils do the same.) 2. Lights and veils differ in that light modifies both the colors under light as well as those not in light, or in shade. In other words, we perceive light on color only when it is accompanied with its shade. When a shadow falls over any color, it will always apear darker and shaded (shadows act as a gray film.) Veils effect only those colors they cover.

Plotting Shadows



Plotting a 2 Dimensional Shadow.

STEP 1: Establish the following arbitrary items.
a. Ground line. b. Post. c. Light Source.
Label each point according to the above diagram.

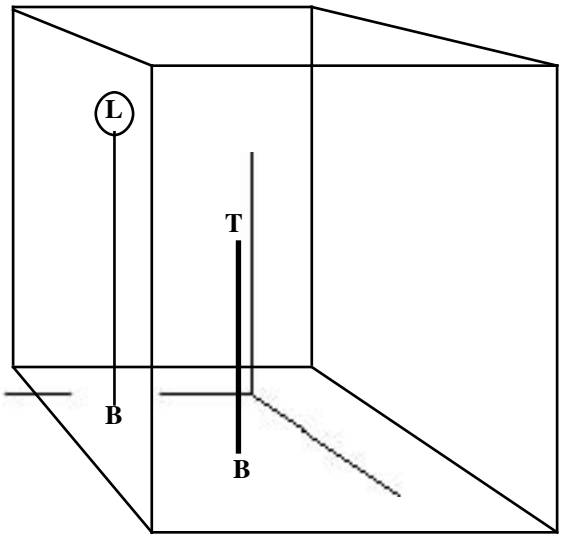


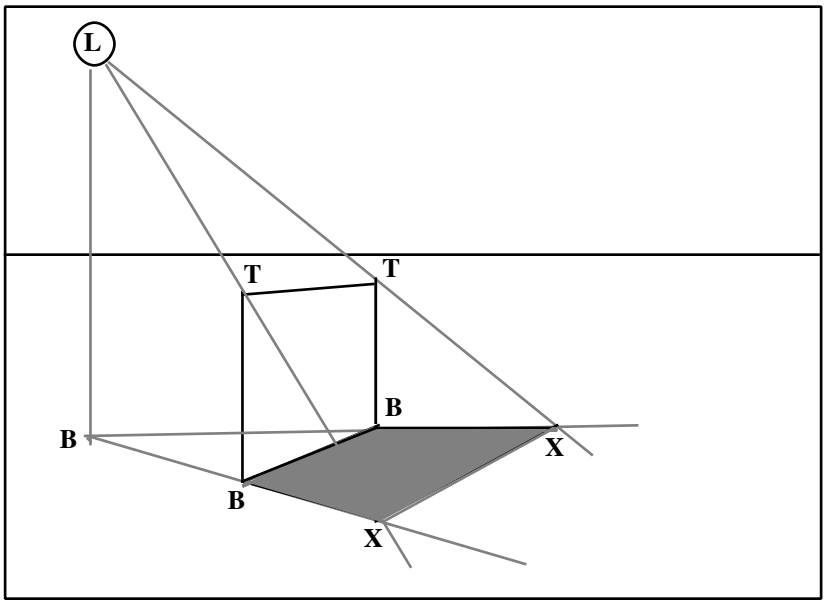
The length of the shadow runs from point (B) to point (X)

STEP 2: Draw a line from the **L**ight source thru **T**op of post; another from **G**round thru **B**ottom of post. Where the two lines meet is **X**. Line **BX** is the length of the shadow.

Plotting A 3 Dimensional Shadow

Translating a 2D plot into a 3D plot requires an additional plot. If a form exists on a 3 dimensional plane, unlike the 2D one above, both the form and the light source must be set in a 3D space. Visualizeing it in a box might make the concept clearer.
Note: In the 3D plot, the light has a base point. This was not required in the 2D plot, because the light was glued to a flat surface. Point B establishes that the light is not only to the left of the post, but behind it as well. All of the items have been arbitrarily placed.

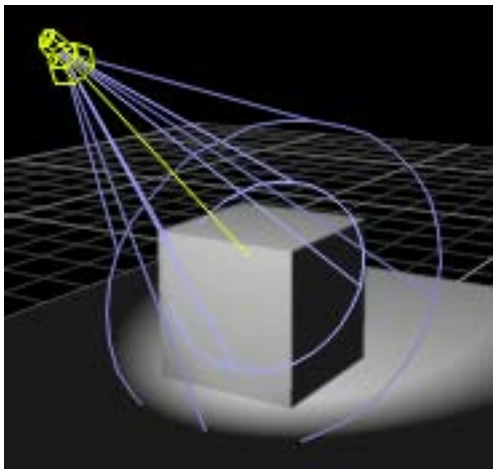




Some Exercises: Using the preceding plots as examples, draw several more, changing the positions of the light.

Step 1. Following the same steps as those used in a 2D plot, draw a line from (L) through T until it passes somewhere below the box.

Step 2. Connect both (Bs) with a straight line and carry this line out to the right until it meets line (LT). Point X is the spot where these two lines meet. The line from the (B) or bottom of the pole to X is the length and direction of the shadow.



Next, construct a cube and plot its cast shadow.

Note: In the illustration on the left, the shadow of a wall is plotted. If each end is viewed as a post, with a Top (T) and Bottom (B), the two X points are found. Simply join the X points and the shape of the cast shadow is revealed.

Translucent Surfaces

Examine the illustration to the right and take note of the illumination of form and color on a lime. Try to answer as many of the following questions as you can on your own.

1. Where is the light source?_____

_____

How do you know?_____

_____

2. What is the color of the light?_____

3. Inventory all of the different surfaces found in this illustration according to their degree of opacity or transparency; dullness or shininess

   a. Background._____ b. Cutting board under the fruit._____

   c. Outer skin of the fruit._____ d. Inner pulp of the fruit._____

   e. The white pulp partitions and inner skin._____

4. Where is the lime darkest?_____Why?_____

5. Where is the lime lightest?_____Why?_____

6. Where is the color of the inner fruit most saturated (high chroma or intensity)?_____

Why?_____

7. What is the local color of the outer skin?_____

8. Approximately what percent of the local color of the lime skin is evident on the foreground slice?___

9. What percent of this same skin would be considered a shade?_____A tint?_____

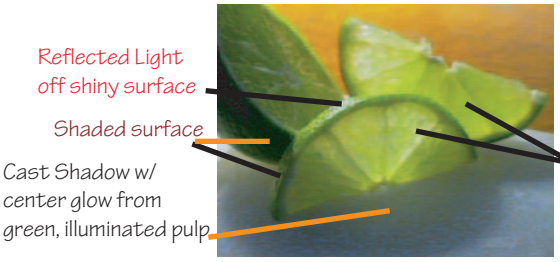
10. Where is there evidence of translucecny?_____

11. Comparing the fruit slice in the foreground with a similar slice behind it, which appears to be more translucent or like a stained-glass window?_____Why?_____

12. Does any part of the outer skin appear to be translucent?_____If so, where?_____

13. Why is the shadow cast by the back slice lighter nearer the fruit?_____

There must be three elements present in order for us to sense a translucent surface. First, we must know the source of light (Reflecting highlight). Second, we must see the shaded area and cast shadow. Thirdly, that surface which is translucent appears more full in chroma.



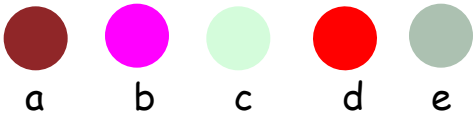
Light source is above and to the back left. (Light source must be behind a translucent surface in order to create this kind of visual phenomenon.)

Exit Questions and Ideas

So, What Did We Learn?

Note: Some of these may have more than a single answer.

1. Which of these colors is a...



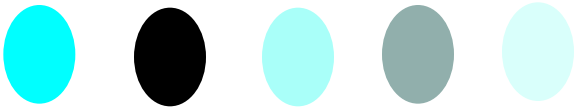
1. Primary? ___ 2. Secondary? ___ 3. Tint?___

4. Shade? ___ 5. Tone?___ 6. Full Chroma?___

2. Find the children of these parents. (Circle ans.)

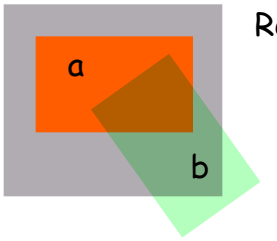
3. Which parent does this child favor?

4. Numerically rank these colors in terms of their dominance of chroma. (1 = Highest Chroma) Which would be least changed by its environment?___



___ ___ ___ ___ ___

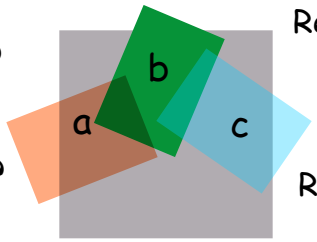
5. Which is the film?
__a. __b.



Reason? __1. Orange is higher. __2. Green is angled. __3. The orange is opaque. __4. A film will modify any color it is on, including the background. ___5. Well, it just looks like a film!

6. Which is a false film?
__a. __c.

7. Why is "b" not a film?

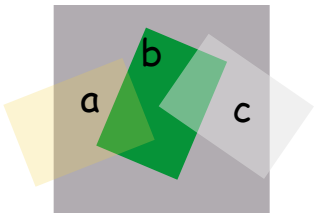


Reason? __1. It is more opaque. __2. The child is a mixture of the two parent colors in both hue and value. __3. It darkens any color it covers.

Reason? __1. None of the background is seen through it. __2. The background does not modify it.

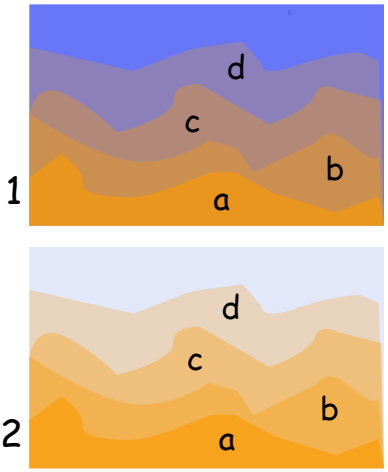
8. Which is a veil?
__a. __b. __c. __d.

Which veil appears more transparent?___



Reason? __1. It lightens any color it covers with the exception of white. __2. It is white. __3. It is changed both "a" and "b".

9. Which picture exemplifies...
__a. volume color?
__b. veiled color?
__c. color modified by films?
__d. halation?
__e. interaction of color?
__f. optical illusions?
__g. phenomena found in nature?
__h. aerial perspective?
__i. the effects of atmosphere?



10. Between which two hills is the distance greatest?__What visual clue tells us this?

_____

True Or False?

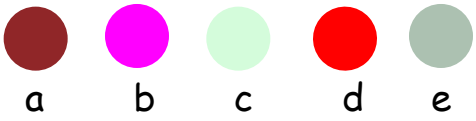
In summary, we can say that this course is about...
__1. Color interaction.
__2. Optical Illusions.
__3. Color Relatedness.
__4. Learning an arbitrary set of "how-to-do-it" rules to ensure that the student's work mimics the teacher.
__5. Hue and value discrimination.
__6. Color literacy.
__7. Color will change according to its strength and surroundings.
__8. How to cut and paste for fun and profit.

So, What Did We Learn?

Note: Some of these may have more than a single answer.

ANSWERS

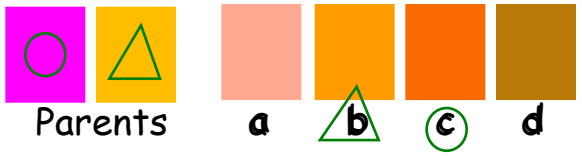
1. Which of these colors is a...



__b__a. Primary? __d__b. Secondary? __c__c. Tint?

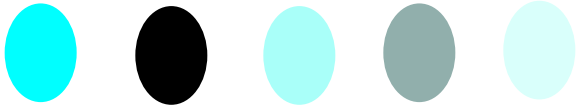
__a__d. Shade? __e__e. Tone? __b__ __d__ Full Chroma?

2. Which color/s could be the child of these parents? __b c__



3. Which parent does this child favor?_____
(Circle your selection)

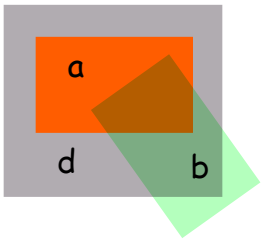
4. Numerically rank these colors in terms of their dominance of chroma. (1 = Highest Chroma) Which would be least changed by its environment?



1 ___ 5 ___ 2 ___ 4 ___ 3 ___

5. Which is the film?

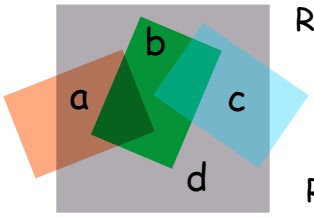
__a. __X__b.



Reason? __1. Orange is higher. __2. Green is angled. __X__3. The orange is opaque. __X__4. A film will modify any color it is on, including the background. ___5. Well, it just looks like a film!

6. Which is a false film?
__a. __X__c.

7. Why is "b" not a film?

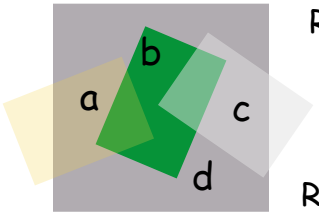


Reason? __1. It is more opaque. __X__2. The child is a mixture of the two parent colors in both hue and value. __3. It darkens any color it covers.

Reason? _____.

8. Which is a veil?
__X__a. __b. __X__c. __d.

Which veil appears more transparent? __a__



Reason? __X__1. It lightens any color it covers with the exception of white. __2. It is white. __3. It is changed by both "a" and "b".

Reason? It allows more of the background color to show.

9. Which picture exemplifies...
__a. volume color?
__b. veiled color?
__c. color modified by films?
__d. halation?
ALL __e. interaction of color?
__f. optical illusions?
__g. phenomena found in nature?
__h. aerial perspective?
__i. the effects of atmosphere?

10. Between which two hills is the distance greatest? **The last two.**

True/False

In summary, we can say that this course is about...

__T__1. Color interaction.
__T__2. Optical Illusions.
__T__3. Color Relatedness.
__F__4. Learning an arbitrary set of "how-to-do-it" rules to ensure that the student's work mimics the teacher.
__T__5. Hue and value discrimination.
__T__6. Color literacy.
__T__7. Color will change according to its strength and surroundings.
__T__8. How to cut and paste for fun and profit.

Visual Phenomena: From Reality To Painted Illusions

These watercolor exercises are designed to promote the understanding of some basic visual phenomena and the painting strategies needed to recreate the phenomena in watercolor.

Exercise #1. Create the illusion of a colored film/s lying on top of an array of colors of varying hue and value.

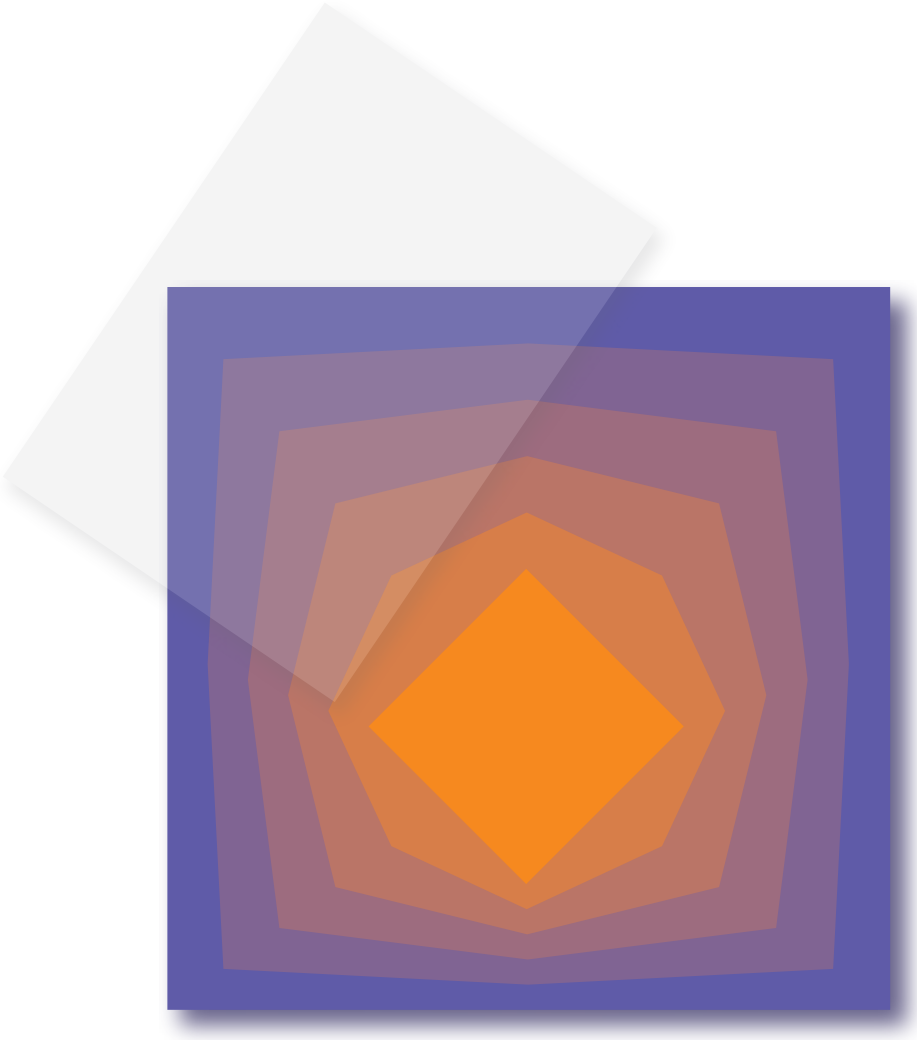
Exercise #2: Create the illusion of a veil/s lying on top of an array of colors of varying hue and value.

Exercise #3: Create the illusion of volume color or atmosphere as it effects the same color at varying distances from the viewer. Paint one in an atmosphere of colored liquid (infinite films) and one in an atmosphere of infinite veils, e.g. smoke, mist, fog, etc.

Exercise #4: Create the illusion of a white spotlight on an array of colors.

Exercise #4: Create the illusion of a colored light on an array of clashing colors.

Find examples of each phenomenon in photos and/or paintings .

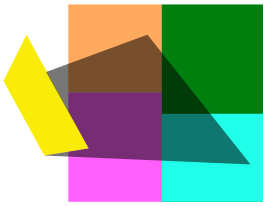


Interaction of Color: Phase II

Dick Nelson's Studio

Fall, 2000

Interaction of Color: Contrasts & Intervals

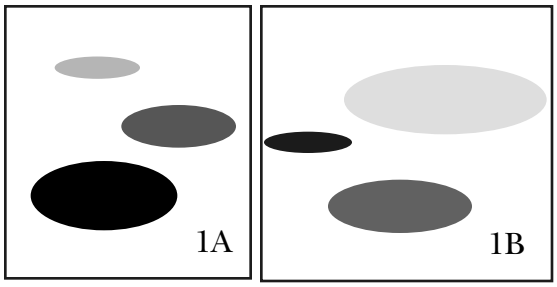


In what way does this illustration differ from Fig. 2A? What are your visual clues?

Answer: This one is illuminated by a brighter light. There is greater contrast between the colored panels in shade and light.

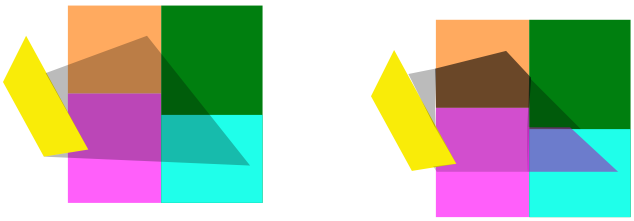
Perception involves many visual clues that tell us, for example, the degree of transparency, the intensity of a light source, and the distance between forms in space. The following examples may assist in understanding some of the critical factors involved in creating the illusion of visual phenomena.

Consistency: How we perceive 3D space, transparency, color and light depends on consistency. For example, as a **form** moves closer or further from us, it increases or decreases in size and contrast in a consistent and predictable manner. Compare Fig. 1A and 1B to note the importance of consistency in creating the illusion of disks in 3D space of white atmosphere. If the illusion is done correctly, that is the forms get smaller and lighter in a consistent manner, we should believe that all three disks are the same size and value. We simply see them under changing conditions.



Correct Illusion Confused Illusion

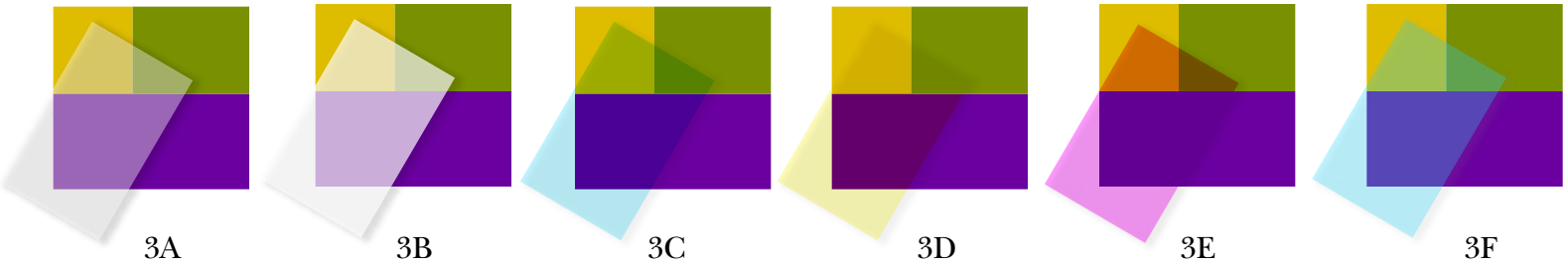
Using the same principle of consistency, compare Fig.2A with 2B. Which is the more convincing illusion of four **colors** in light and shade? Why does one work, but not the other?



2A 2B

If you chose Fig. 2A as correct, you are correct. The reason it works is because the cast shadow changes all colors and values equally. That is, the contrast between orange and shaded orange equals the contrast between all the other colors in light and shade. By contrast, Fig.2B is inconsistent throughout. The cast shadow...1. fails to line up common edges. 2. has modified the color of the turquoise ground as well as its value.

The term *Color Constancy* is used to describe how we recognize a given color as unchanged, although we might see it under different conditions. If asked to count the numbers of colors in Fig. 2A, non-artists would say five when in fact there are eleven. Count all the colors and their shades plus the white background with its gray shade.



3A 3B 3C 3D 3E 3F

Color constancy can also be seen in illusions which deal with transparent veils and films. Comparing the white veils in Figs. 3A & 3B, we can sense that 3B has a more opaque veil, Our visual clue is that the contrast between the colored panels and the veil are greater in 3B. Contrasts in both illustrations remain consistent.

3C, 3D and 3E illustrate the effect colored films have on colors. See how they modify the colors they cover in both hue and value. Unlike the veil which lightens, the film deepens the value and changes the hue of any color it covers. 3F is an example of a false film. Although it appears to be transparent, it lightens most colors it covers.

TRANSPOSING COLOR COLOR

Pick the one gray/color swatch below which matches the value as this color.

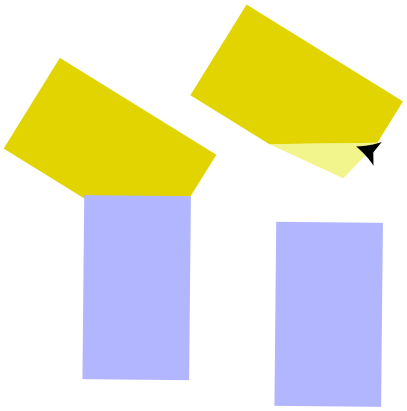
The trained eye can discriminate among some 240,000 different colors. This includes all the tints, tones and shades of a given hue. In addition to its hue, each color has a value. Determining the value of a color is not a simple task. If, in the above pretest you picked "B", your value discrimination seems on target. If you chose any of the other swatches, we have our work cut out for us.

Exercise: Pick two colors out of the color pack which are the same value. This has nothing to do with chroma (intensity). Compare your choices with other students until you're convinced you have matching values.

Critique: The class will first screen the pairs which are least alike in value, followed by close, but still different valued hues. All final judgment will be pronounced by the teacher, whose judgment, at this moment, becomes suspect.

Exploitation: Identify any discrepancy and try again...and again....and....

HELPFUL HINT: When all else fails, you might try the Albers' trick of placing a corner of one color over the other. After staring at these overlapping colors for 20 seconds in bright light, pull the top color off and keep your eye on the spot where the two colors overlapped. If the after image is lighter than the background, its most likely that the overlapping color is darker in value and visa-versa.

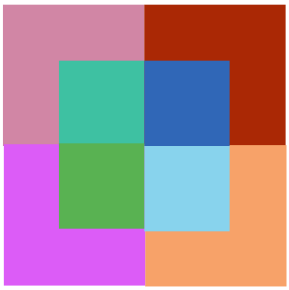


After Image

Music has a scale which ranges from the lowest to highest audible sound. A musician can play a series of notes which differ in range, such as the familiar NBC, three notes. The intervals between these notes allow us to identify the melody. We can also identify this melody when it's played in another key. The notes change, but the intervals between them remain the same. Musicians call this transposing.

Similarly, a colorist can change the hue of a color without changing its value. In the example below, the center squares in cool colors can be transposed into the warm outer squares without changing their respective values. In other words, the high value hues remain the same high value although their hues have changed. Similarly mid-range and low values remain the same value as their colors change.

Assignment: Using the format below, create a composition consisting of 4 warm hues of varying values and 4 cool hues of equal value. Arrange the colors so that the warm and cool hues of equal value are together as shown.



Helpful Hints

Compare both the value contrast of the background colors with those of the foreground. For example, the top left warm pink is how much lighter than the red to its right. Similarly, the light green center square should have the same value contrast as the darker blue gray to its right.

Between what two colors is the value contrast greatest? Which two background colors are closest in value?

VANISHING BOUNDARIES
VANISHING BOUNDARIES
VANISHING BOUNDARIES
VANISHING BOUNDARIES

This graphic image has the same color text repeated four times. From a couple of feet away, note which lines of text merge into the background. At this distance, the individual colors are seen as one luminous hue. This phenomenon is called "A Vanishing Boundary".

Vanishing boundary describes the visual phenomenon in which two colors of equal value and similar hue, are seen as a single color when viewed from a specified distance. This third color appears more luminous than either of the hues that produced it.

This phenomenon has little to do with the brightness or intensity of the colors. Examination of an Impressionist painting at close range reveals colors which are, in most cases, toned or grayed. Step back a few feet, however, and marvel at the luminosity created by *vanishing boundaries*.

Detail of a Monet Painting

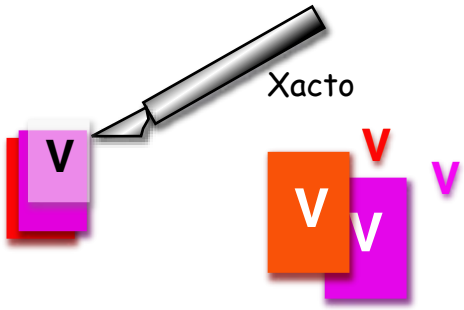
The Lesson

1. Find two colors in the color pack which are similar in hue and equal in value.

2. Design or copy a simple shape as a template for a positive image.

Tracing Paper Template

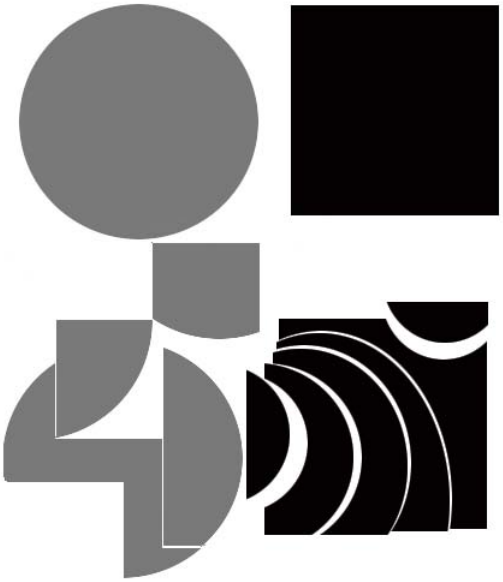
3. Using this template, cut out its shape from both colors selected. It is important to place one color over the other and cut both simultaneously with a very sharp blade. Use glass or a similar surface as your cutting surface, for the cut must be clean and precise. It is most important to cut through both papers in a single cut. Tape all three pieces of paper together prior to cutting to avoid shifting surfaces.



4. Remove the cut shapes from their backgrounds and inlay them into one another's background. There can be no overlapping or gaps in the inlay.

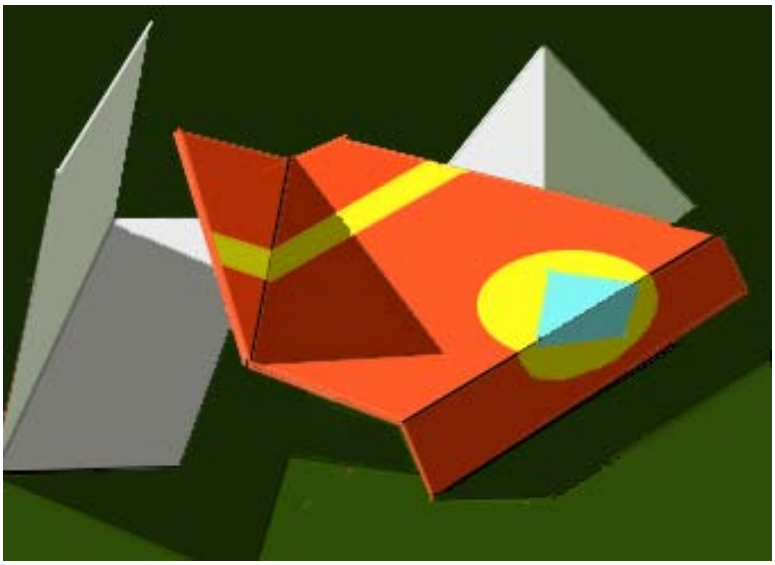
5. Allow no glue to show around the edges.

Result: A graphic example of a vanishing boundary. If executed correctly, the figure will disappear into its background, creating a luminous third color.



Integrating Form & Color: *Expanding our options*

In the above illustration we see a couple of ways to create new forms from two geometric forms. All of the pieces cut from each form have been reassembled to create new shapes. What was done with the circle? How does that approach differ from that of the black square? In what way is the white ground incorporated?



In what way were geometric forms incorporated in each of these two examples?

Which of the following principles of visual phenomena were used in these examples?

1. Light.
   a. Source
   b. Shades and cast shadows.
   c. Ambient
   d. Colored

2. Distortion. (Fold, stretch, dissect, etc.)

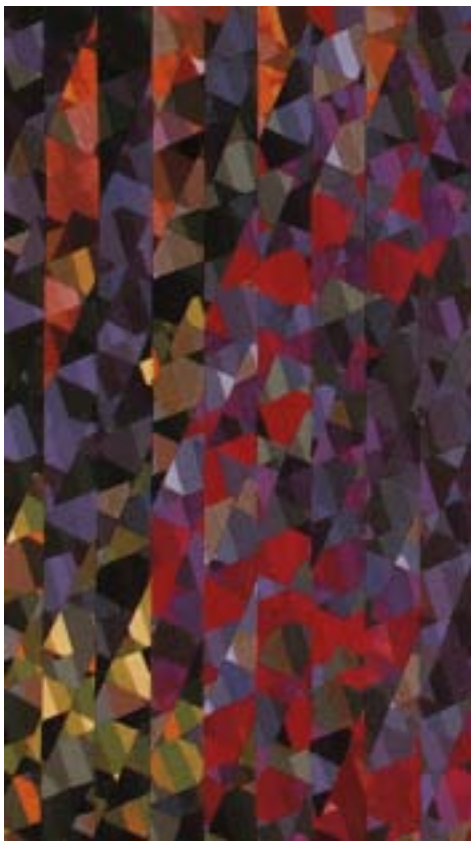
3. Veils

4. Films

5. Volume Color

6. Temperature

7. Complements



Detail from fabric piece created by Joy Saville.

Visually inventory this detail to identify...

a. Color palette plan.

b. Value range.

c. Compositional plan.

d. Interaction of form and color.

lose a shape

A free color study which challenges our ability to integrate shapes so that they become "OF" rather than simply "ON" the composition.

Assignment 1: Integrate (as opposed to hiding) a leaf or leaves into a color composition.
Procedure:

1. Using a piece of mat board or its equivalent, create a paper and leaf collage.

2. The board should be large enough to allow the composition to expand or be cropped.

3. Papers may be cut or torn.

4. The leaf should not be overlapped by any opaque paper.

5. Identify any criteria you set for yourself.

Assignment 2: Exploit the lessons learned here in a second composition.

Procedure: Identify one or more of the following visual phenomena as your compositional idea.

1. Halation. 2. Equal Value. 3. Film. 4. Veil. 5. Volume color.. 6. White light

7. Colored light.. 8. Translucency. 9. Reverse gradation. 10. Temperature.

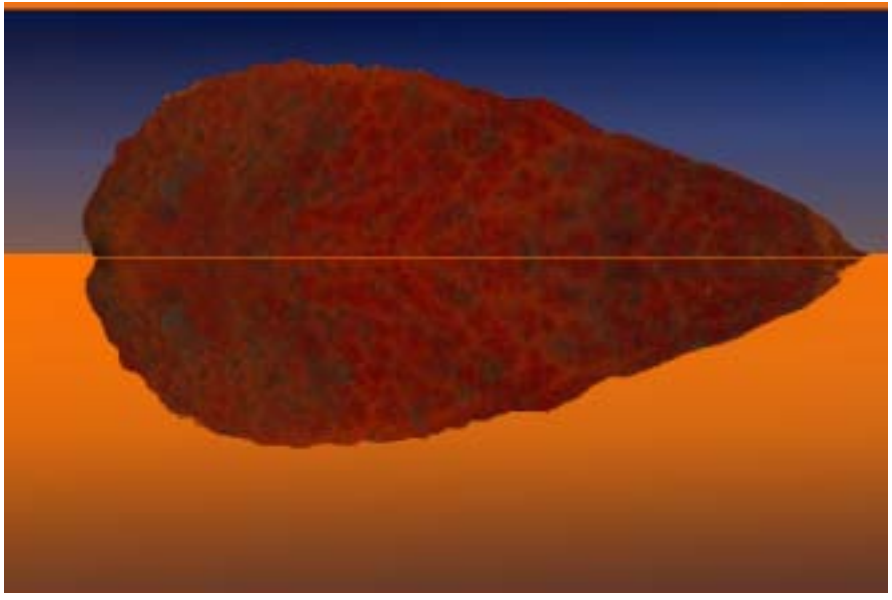
Assignment 3: Family Gathering

Procedure:

1. Select an array of eight colors from the color pack. The array should be based on a family of colors which consist of two parents and six offsprings (no adoptions here.)
Check your selection with the instructor before proceeding to the next task.

2. Using only these colors, create a composition which incorporates one or **more** of the ten visual phenomena listed above.

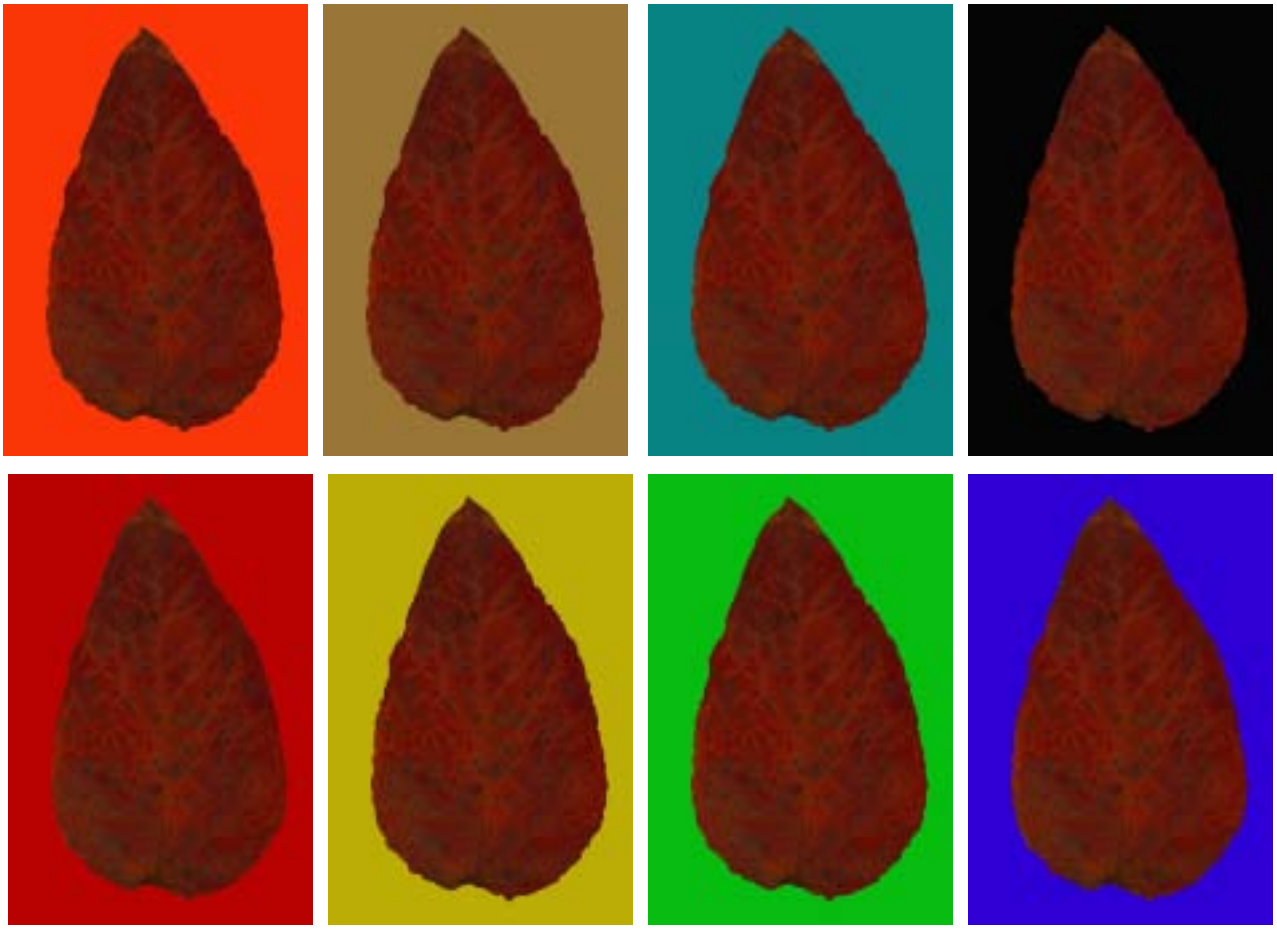
Suggestion: Draw out plan from which shapes will be cut.



Of or On

In our natural environment, forms of many hues and values either contrast or blend with their surroundings. When composing a man-made environment, we may choose to create integration and harmony, or conflict and dissonance. In the example here of the leaf, we can make it appear to be "OF" (integrate) or "ON" (dissonance).

In the illustration above, how has the leaf been made to seem "OF" rather than simply on its environment? How has this integration been accomplished?* Is there evidence of luminosity here?



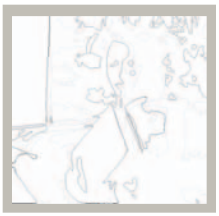
In the examples above, we see a sampling of how a leaf appears in different colored environments. How do you see the varying degrees of integration, or in which background do you feel the leaf is at home. Which background makes the leaf appear to be "ON" rather than "OF". How would you explain your decisions?

*Some thoughts. The illustration at the top uses several integration devices. It recognizes that the leaf is basically composed of complementary hues of orange and blue. By utilizing both colors in the background, the leaf appears to glow or become somewhat translucent. It's mirrored image integrate the upper and lower portions of the composition. In the lower examples, the leaf is least "OF" its environment where there color and value contrasts are strongest. Because of the leaf's toned color, it will integrate with most any environment, for it contains some quantities of all three primaries.

Recreate A Masterpiece

Assignment: 1. Find a reproduction of a favorite masterpiece in which color plays a vital role. The colors do not have to be bright and intense, but the reproduction should be good.

2. Copy the reproduction to a manageable size.



3. Trace the essential compositional forms.

4. Cut and tear matching colors from magazines to build a palette of the essential colors of the original painting.

5. Glue the tracing to mat board (acid free) next to original as done here.

6. Tear or cut colored paper to approximate shape of color of the original.

7. Glue colors to tracing paper.

Criteria: 1. Disregard small details and minute variations of hue and value.

2. Be accurate in color and value matching.

What Lessons Have We Learned? Can We Spot Them In Other's Work?

1. Study these two landscapes by Frederick Edwin Church and identify specific examples where he incorporates a class lesson (List below). Which lessons dominate his work?

2. Inventory the colors in each painting to determine his use of full chroma, tints, tones and shades. Which of the four dominates?

3. How does the artist create luminosity in these paintings?

4. Although we perceive the waterfall as basically white foam, how much pure white is actually in the painting?

5. Fine in each painting the color which comes closest to being a full chroma hue. Approximately how much of this color is present in the painting? How has their chroma been reduced?

6. What is the color of the light source in each painting?

7. Why are no shadows cast in the top picture?

8. What is the time of day in each work? Why might the artist choose such a time?

9. Looking at the foreground in the lower picture, we see rocks and green growth in the sun and in the shade. What has the artist done to create the convincing illusion?

10. Why has the artist incorporated all of these lessons?

LESSONS

Color Deception

1. Making one color appear as two.
2. Making three colors appear as two.
3. Making four colors appear as three.

Visual Phenomena

1. Illusion of a true or false film.
2. Illusion of a veil.
3. Volume Color.
4. Illusion of white or colored light.
   a. Primary light source.
   b. Ambient and reflecting light.
   c. Shadows.
5. Equal Value.

Color Terms & Mixing

1. Primary, secondary & tertiary.
2. Full chroma, tints, shades & tones.
3. Complements.
4. Halation.
5. Vanishing boundaries.
6. Local Color.

Albers II: A Recollection

1. Identify as many Albers assignments as you can remember.

2. What do these lessons have in common?

3. Identify how a particular exercise might be applied.

4. Name two ways to create color luminousity

5. Define the following:

   a. Local color

   b. Full Chroma

   c. Tone

   d. Tint

   e. Complementary color

   f. Hue

6. Name the 3 Primary Colors (not by any product name).

7. Draw a simple format which could be used to create an illusion of transparency.

8. Draw a simple format in which the illusion of a spotlight might be recreated.

9. Draw a simple format which might be used to illustrate a color change.

10. What colors would you choose in order to create the maximum color change?

11. What values would you choose in order to create a maximum value change?

12. If you wished to make a rusty red appear as a brighter red, upon what color would you place it?

13. Should you wish to change this same rusty red to a more neutral hue, what hue would you select to surround it?

14. If a yellow ball is illuminated by a red light, what color is the cast shadow?

15. If a small red circle is painted on a white sheet of paper, why does it fail to create a spotlight illusion?

16. What have these lessons to do with aesthetics?

Color Array Demonstrating
Volume Color and Halation