

Color and Value

"... colour, [...] can be neither weighed nor measured. Neither with scales nor with ruler can any difference be detected between two surfaces, one a pure yellow and the other a pure red, of similar area and similar brilliance. And yet, an essential difference remains, which we, in words, label yellow and red."

"And what tremendous possibilities for the variation of meaning are offered by the combinations of color."

Paul Klee
On Modern Art
1924

"In visual perception a color is almost never seen as it really is - as it physically is.
This fact makes color the most relative medium in art.

In order to use color effectively it is necessary to recognize that color deceives continually."

Josef Albers
Interaction of Color
1963

Method

Since color is "relative" and "deceitful", I will not attempt to demonstrate any 'objective' way of studying or teaching it.

Rather, we will try to explore together means for developing an eye for color, both through the use of pigments, and through the observation of color as a property of light.

The experimental attempt to develop a sensitivity for color, must nevertheless include a strict discipline.

Gouache will be mixed and applied directly on stretched paper. Uniform application will be essential in order to avoid shadows cast by uneven surface areas. The appearance of the colors should not be influenced by brush textures and transparent layers, which therefore must also be avoided.

Bibliography

Selected titles on color

Perception:

ALBERS, Josef
Interaction of Color
New Haven: Yale University Press, 1963, 1971, 1975.

ARNHEIM, Rudolf
Art and Visual Perception: a Psychology of the Creative Eye
Berkeley: University of California Press, 1954.

Painting:

ITTEN, Johannes
The Art of Color
New York: Van Nostrand Reinhold, 1961.

The Elements of Color
New York: Van Nostrand Reinhold, 1970.

KLEE, Paul
The Thinking Eye
New York: Wittenborn, 1973.

The Nature of Nature
New York: Wittenborn, 1973.

Philosophy:

GOETHE, Johann Wolfgang von
Theory of Colors
Cambridge: The M.I.T. Press, 1970.

WITTGENSTEIN, Ludwig
Remarks on Colour
Berkeley: University of California Press, 1978

Physics:

NEWTON, Sir Isaac
Opticks
New York: Dover Publications (reprint), 1979.

ROSSOTTI, Hazel
Colour: Why the World Isn't Grey
Princeton: Princeton University Press, 1983.

Tools

- * 14" x 17" strathmore sketch pad (400 series)
- * brushes (include blunt soft hair, 1" wide)
- * drafting tape 3/4"
- * sheet of glass 11" x 14" (tape edges or grind)
- * one large and few small containers for water
- * jars for storing paint
- * piece of cloth
- * drawing board 18" x 24"
- * dry mount tissue

Winsor & Newton gouache

- # 501 alizarin red
- # 506 flame red
- # 574 golden yellow
- # 532 spectrum yellow
- # 529 sky blue
- # 566 turquoise blue
- # 533 ultramarine
- # 513 ivory black (large tube)
- # 522 permanent white (large tube)
- # 576 viridian
- # 556 oxide of chromium
- rose tyrien

Gouache color
composition:
(Winsor & Newton)

Alizarin red = RED + BLUE + green
Flame red = RED + YELLOW + green
Golden yellow = YELLOW + RED + violet
Spectrum yellow = YELLOW + BLUE + violet
Sky blue = BLUE + RED + orange
Turquoise blue = BLUE + YELLOW + orange
Ultramarine = BLUE + RED + orange
Viridian = GREEN + BLUE + red
Oxide of chromium = GREEN + YELLOW + red
Rose tyrien = RED + BLUE + green

Note: XXXX = main component
XXXX = some
xxxx = very, very little

Gouache mixes
(Winsor & Newton)
to obtain
primary and
secondary colors.

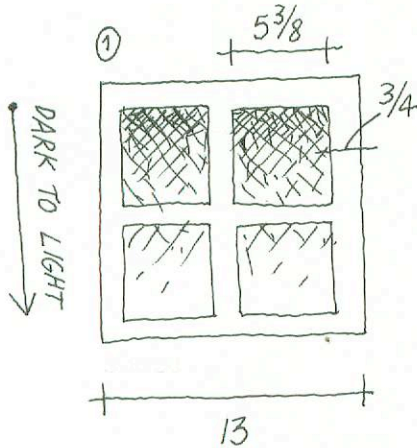
RED = flame + rose
BLUE = sky + turquoise
YELLOW = golden + spectrum

VIOLET = ultramarine + rose
ORANGE = flame + golden
GREEN = turquoise + spectrum

Assignment 1: 2

GRADATION FROM DARK VALUE TO LIGHT VALUE

Part 1 - Black & White

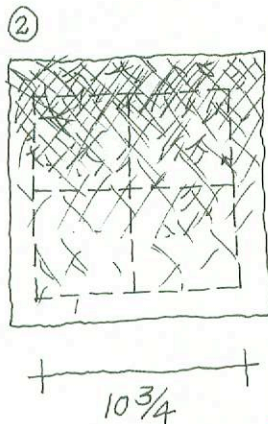


Find an illustrated magazine. Collect small snippets of grays from B&W photographs. Arrange the pieces in a downward gradation, ranging from deep blacks at the top to clear white at the bottom. The transition must be as soft as possible.

Mount the composition as four equal squares (5-3/8 X 5-3/8) on a stiff sheet of correct middle gray (13"X13"). 3/4" margins should result on each side and in the central cross, as shown in the sketch.

Start with a large composition about 11-1/2" on each side of the square, then cut the smaller squares as shown in sketch 2.

Note: Consult "Interaction of Color" by Josef Albers, plate V-1 and page 77, for more information.



Part 2 - Color as Value (Brightness)

Find a second illustrated magazine. Collect small snippets of various colors from color photographs and arrange them in a similar fashion: downward from dark to light values.

Remember, look at the colors in terms of value: very dark, dark, medium, light, very light, etc. Even though the easy solution would be to select only blues for the dark area, reds for the middle area, and yellows for the light area, try to avoid such a "stacking" of color bands.

On the contrary, every area should ideally include every color (almost every color).

Therefore, try to find also very dark yellows and very light blues. Do the same with all colors.

Try to avoid creating "spots" and large areas and shapes of just one color.

The composition should be a blend of all colors, so that our attention will be focused mainly on the dark-light variation.

Mount the squares in a similar fashion, but this time use a sheet of white bristol board (13X13).

Note: Look for areas in the photograph that are as texture-free as possible. Avoid knits and similar uneven surfaces, both in color and B&W.

Due: January 31

Assignment 3:

1 color looks like 2 (3 colors look like 2)

Based on the class discussion and demonstration of this color interaction, create two boards, one for the REVERSED GROUND effect, and one for the INTERSECTING COLOR effect.

Remember that you can select:

- 2 colors, same hue (different value),
- 2 colors, different hues
- 2 colors, opposing (complementary) hues.

- Find the third color as a middle mixture, both in hue and value, between the other two.

Leave at least 3/4" margins around your 13x13 boards, but follow approximately the arrangement given in the sketch.

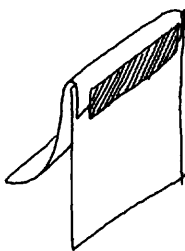
For more descriptions, see Albers, pages 18-19, 37-38, and plate VI-3.

Due: February 7

Note: you may use the same three colors for both boards, although you may have to experiment in order to obtain the desired effect.

General notes on assignments and classroom work.

Unless specified, all boards must be 13x13 inches, covered with a protective sheet of tracing paper. White or black thin paper is fine but attach it as shown.



Craftmanship is very important. Do not work as if you were going to miss the train. Do not hurry, be patient. Haste produces waste.

Since a lot of practical work will be done in class, you are expected to participate during the full period: 1-4:30 PM. If anyone "feels" like not working/disturbing others, I will ask her/him to leave the room. However, these absences will be taken into account in the final evaluation.

Missing a class is no excuse for not doing scheduled assignments. Please get the assignment sheet from your fellow classmates - do not wait until the due date.

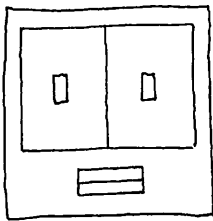
Since it has been a general bad habit to leave one's trash behind after eating, no food will be allowed in the classroom anymore - no drinks either. Cleaning up your desk at the end of the class also applies to paper scraps and the sort.

Assignment 4:

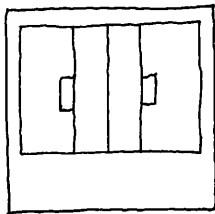
2 different colors look alike (subtraction of color)

"... experiments with adjacent colors show that any ground subtracts its own hue from colors which it carries and therefore influences. Experiments with light colors on light grounds and dark colors on dark grounds prove that the light of a ground subtracts in the same way that its hue does."

Albers, pp 20-21



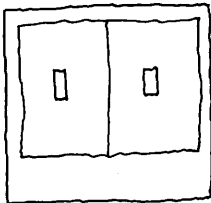
** Create a board in which 2 different colors look alike when placed on 2 different grounds.



** Create a board in which the same color looks different when placed on 2 different grounds. (this is the reverse of the previous board, but the same principle of subtraction applies.)

Consult Albers: pp 20-21, plate VII-4, and front cover.

OR




Due: February 14 (2 boards)

Assignment 5:

Transparence and space-illusion

Select 3 colors (a, b, c,) trying to avoid primary and very saturated colors. Assign 3 geometric shapes to the 3 colors. "Overlap" the shapes and determine 3 middle mixtures plus a central mixture which is the sum of all 3 colors.

Depending on the amount of each parent color, every mixture will create a space illusion of "in front" or "behind". Harder and softer boundaries will tell which is the predominant color in the mixture.

The goal is to create a composition in which "in front" and "behind" are reversible. True middle mixtures are needed for this effect. The task is difficult, since shape is the other influencing factor here: our experience in the perception of the world tells us that this:  is most likely made up of

a spatial  rather than a flat .

Proceed as follows:

- determine the 3 basic colors (a, b, c)
- find the middle mixtures of the pairs a+b, a+c, b+c
- determine the shapes and the overlaps of the final configuration
- use your rulers and tracing paper to help you with the design
- the parts for the final design must be cut with a blade or a knife and a straight edge

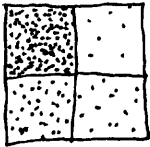
References: Albers, pp 24-26, 29-32, 79-80, plate IX-1

Due: sketches, by the end of the class today

final design, February 21

Assignment 6:

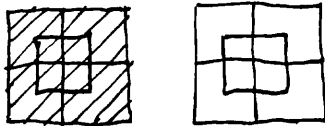
Interval transformation



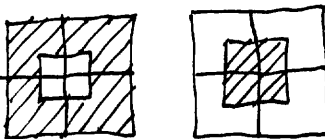
Select 4 tints of the same hue and combine them into a square configuration. Each tint will differ from the other in terms of light intensity (lightness or value).

Lower or raise the original set into a similar set, using 4 tints of a different color (darker or lighter). For example, four reds into four blues.

The steps in each set are to be in the same relationship: from dark to light, counterclockwise.



Superimpose a smaller central area (square) from each set on top of the other set. Compare the hard and soft boundaries.

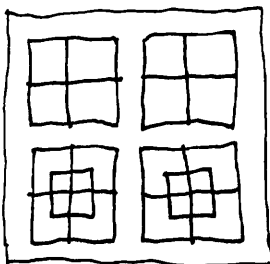


The purpose of this study is to explore the relationship of "parallel intervals".

Darken or lighten colors by mixing black or white in them.

Refer to Albers: pp 34-36, 80, plate XIV-1.

Due: February 28



Assignment 7: Free study

Select one of the following color contrasts:

Contrast of hue
Dark-light contrast
Cold-warm contrast
Complementary contrast
Saturation of color
Extension of color

... to express one of the following oppositions:

Air-earth
Fire-water
Loud-quiet
Far-near
Active-passive
Day-night
Female-male

Although this is a free study, do not use figurative representation. Use color for color sake, in relation to other colors.

The size of the piece is open, but must be 10X10 inches minimum. Use no more than four hues total.

Due: March 7, 3:00 pm, along with all the other projects.

