

Ms. Garcia

PROJECT PLAN: Painting, Color Theory & Optics

Grade: 6th – 8th

Medium: Painting

Materials: Tempera paint (red, yellow, blue, magenta, turquoise, black, white); paintbrushes; paint tray; sponge or paper towels; water container; water color paper

Essential Question: Is color in the eye of the beholder?

Overview: Students will be challenged to think about the ways in which our perception of a color is relative to context. They will paint a color wheel and discuss how it helps artists see differences between hues. In guided dialogue, students will look at and respond to paintings that explore color relationships. After completing a worksheet about the science of color and light, they will learn about two different color models, the Pantone and Munsell system. They will consider the science and subjectivism involved in setting “universal” color standards. They will choose “matching” color swatches from each model and practice their painting skills by mixing paint in that color. Using their self-mixed color, plus black and white, students will make value scales and create a monochromatic painting of a “sphere.”

Development: Middle school students are very interested in developing artistic skill, and place emphasis on final product. They set standards for what they consider “good” art (e.g. illusion of reality) but their skills do not always measure up to these expectations. They seek “tricks of the trade” for help and it’s difficult to get them to explore materials. They love to draw/doodle, and will spend lots of time experimenting to increase skill.

Prior Learning: Students have some experience with paint. They have practiced spreading and applying ink and acrylic paint in two separate projects. In one of the projects, students mixed acrylic paint to make different colors, but they did not learn about the color wheel. Students are experienced with drawing contours from observation. They have previously learned about values in drawing and have made a value scale using pencil.

NATIONAL VISUAL ARTS STANDARDS:

1. Understanding and applying media, techniques, and processes
2. Using knowledge of structures (expressive/organizational features) and functions
3. Reflecting upon and assessing the characteristics and merits of their work and the work of others
4. Making connections between visual arts and other disciplines

COMMON CORE STANDARDS: Physical Setting/Physics

STANDARD 6: INTERCONNECTEDNESS

Key Idea 1: Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.

Key Idea 2: Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.

VOCABULARY: Complementary colors, hue, tone, value, chroma, saturation

LEARNING OBJECTIVES: Students will learn that:

- The color wheel helps to show the relationship between colors
- They can carefully clean, dry, and use a single brush to apply and spread different colors of paint evenly onto paper
- When they mix different colors of paint, it helps to start with the lightest color and slowly mix in darker colors (in small amounts) until they reach a desired hue, tone, or shade
- They can look closely, make comparisons, and use color theory to mix paint that matches any hue they observe
- They can paint values to show how light hits an object, and to create the illusion of three-dimensional space on a two-dimensional surface

- The refraction of white light causes wavelengths to bend and show different hues of color to the human eye
- Today, manufacturers make synthetic pigments for paint, using chemistry and models such as the Munsell Color System for identifying colors
- A scientific model is a system used for analysis; the color wheel is an example of a model that shows relationships in color theory
- They can paint values to show how light hits an object, and to create the illusion of three-dimensional space on a two-dimensional surface

PERFORMANCE OBJECTIVES: Students will be able to:

- Explain the many ways that the color wheel allows artists to see the relationship between different colors
- Define vocabulary that is relevant to color theory
- Use primary colors to create secondary and tertiary colors, and paint all colors onto a color wheel in an even (no streaks, no muddy marks on canvas paper) and efficient manner (without wasting primary colors or space on palette)
- Mix paint to match any color swatch of choice, using their palette and painting onto watercolor paper to test hues/tones
- Explain the relationship between pure “hues” of color and the refraction of light
- Describe the Pantone and Munsell color systems and how artists or scientists have used them to analyze color relationships
- Create a painting of a monochromatic “sphere” by identify the values on their source image, and mixing paint to match those values

LESSONS:

1. How is color relative to context? Students will make a list of what they know about the color wheel, then share their thoughts in a guided dialogue about how painters can use it as a tool. After comparing different displays of color swatches they will discuss how the color wheel allows artists to see the relationship between colors. Students will use a template to draw the color wheel onto watercolor paper, labeling primary and secondary colors. They will watch a demonstration on how to clean and use a brush effectively, as well as how to mix colors using paint and palette space efficiently. They will use the primary colors to paint primary and secondary colors onto outer ring of color wheel.

2. Color Theory & Op Art. In their journals, they will reflect on a quote by Joseph Albers about the subjectivity of color. Before painting their tertiary colors, students will discuss any difficulties with mixing and painting secondaries. They will then mix paint to recreate the hues of secondary colors on their color wheel (for the second ring), and finally create tertiary colors (for both the first and second ring). Students will discuss the relationship of complementary colors on the color wheel, as watch a demo on mixing them to make neutral colors. They will finish painting their color wheel by creating different tones of brown. In guided dialogue, students will respond to paintings by Joseph Albers and discuss qualities of color. They will look at paintings by Joseph Albers, and use qualitative language to respond to the relationships of harmonious or contrasting colors. They will work in groups of four to list aspects of Albers’ work that reminds them of their own experience with paint.

3/4. Color Detective/ “Science” of Color. Students will complete a worksheet about color theory and the “science” of color, and discuss the ways they think color is objective or subjective. They will also look at and respond to a presentation on the Munsell and Pantone color system. They will choose a swatch from each color model system that match closely in color. Students will mix paint to match their chosen swatches, making a large quantity for later use (3 sauce cups). They will assign their paint a name and describe why the name is appropriate, in one or two sentences (the name should be different than the original color models).

5. Values, Tints, Shades. Students will discuss how light and values affect the way we perceive three-dimensional and color. In dialogue they will define monochromatic, examining the root words “mono” and

“chrome.” Students will make value scales by using their self-mixed color, plus black and white. They will create a painting of a monochromatic “sphere” by identify the values on their source image, and mixing paint to match those values.

LESSON PLANS:

1. How is color relative to context?

EQs: What is the color wheel good for? How can I mix primary paint to reach a desired hue?

Materials: Journals, pencils, color wheel worksheet, watercolor paper (to trace color wheel onto)

Do Now: What is a color wheel? Make a list of things you know about it or the categories of colors it can display

Motivation: Color wheel display and disorganized display, both with removable color swatches. Class dialogue begins with guessing game based on disorganized display: “Can you detect what color this is? Is it really violet or blue violet, maybe red violet?”

Students will learn:

- The color wheel helps to show the relationship between different colors
- They can carefully clean, dry, and use a single brush to apply and spread different colors of paint evenly onto paper
- A mixing palette can be used to mix and create a desired color, before applying the paint onto paper
- When they mix different colors of paint, it helps to start with the lightest color and slowly mix in darker colors (in small amounts)

Students will:

- Make a list of what they know about the color wheel (“Do Now”), then share their thoughts in a guided dialogue about how painters can use it as a tool
- Compare/contrast a display of color swatches to the color wheel, and discuss how each allows us to see the relationship between different colors
- Trace/draw the color wheel onto watercolor paper, labeling primary and secondary colors
- Define “hue” “tone” “primary” and “secondary” colors, in their journals
- Watch a demonstration on how to clean and use a brush effectively, as well as how to mix colors using paint and palette space efficiently
- Paint primary and secondary colors onto outer ring of color wheel

2. Color Theory & Op Art.

EQ: What amount of primary paint should I mix together to reach a desired tone? In color theory, how are “tones” different than “hues?”

Materials: Tempera paint in primary colors, paintbrushes, palettes (trays or paper plates, e.g.), sponge/paper towel, cups for water, color wheel template (traced onto watercolor paper)

Do Now: A famous painter has said, “If one says “red” – the name of the color – and there are 50 people listening, it can be expected that there will be fifty reds in their mind. And all these reds will be very different.” Do you think color is in the mind or the eye of a beholder? Why or why not?

Motivation: Students will be asked to review primary and secondary colors, by selecting the appropriate swatches and attaching them onto the big color wheel display

Students will learn:

- Color can be perceived in subjective and relative ways
- They can use observation as well as notes to recreate previously painted colors
- Mixing together complementary colors, in different parts (e.g. greater part orange than blue), can create different tones of brown
- Complementary colors (or, warm and cool colors) contrast each other in extreme ways
- Mixing together complementary colors, in different parts (e.g. greater part orange than blue), can create different tones of brown

Students will:

- Share responses to the “Do Now” and discuss/describe any things they like or find difficult about mixing

- List what they know about “tertiary colors,” such as their process of mixing colors to create them
- Watch a brief demonstration on how to take notes and match colors that have been painted before (and are now dry in an artwork)
- Mix paint to recreate the hues of secondary colors on their color wheel (for the second ring), then create tertiary colors (for both the first and second ring)
- Discuss the relationship of complementary colors on the color wheel, as well as how they can mix them to make neutral colors
- Finish painting their color wheel by recreating hues already painted, then mixing the different sets of complementary colors to create tones of brown
- Look at paintings by Joseph Albers, and use qualitative language to respond to the relationships of harmonious or contrasting colors

3/4. Color Detective/ “Science” of Color.

EQ: What is the science of light and color? How can we recreate or define colors we observe in nature?

Materials: Tempera paint in primary colors, paintbrushes, palettes (trays or paper plates, e.g.), sponge/paper towel, cups for water, color wheel template (traced onto watercolor paper)

Do Now: Complete the worksheet on the science of light and color Motivation: Large color swatches of neutral tones painted by teacher. Which tones of brown do you guess have more yellow? Which have more purple?

Students will learn:

- In color theory, the word “hue” describes the “pure” colors in the light spectrum
- The refraction of white light causes wavelengths to bend and show different hues of color to the human eye
- Today, manufactures make synthetic pigments for paint, using models such as the Munsell Color System for identifying colors
- In the 1960s, Lawrence Herbert invented the Pantone color system to create a universal standard for designers and advertisers
- They can look closely, make comparisons, and use judgment to mix paint that matches any color they observe

Students will:

- As a class, review responses from their worksheet on the “science” of light and color
- Look at and respond to a presentation on the Munsell and Pantone color systems
- Choose a swatch from each color model system that resemble each other closely
- Tape swatches to their journals
- Mix paint to match the swatches, using their palette and painting onto watercolor paper to test hues/tones
- Make a large quantity of that color for later use, using plastic spoons to “scoop” the paint into sauce cups

5. Values, Tints, Shades.

EQ: What amount of primary paint should I mix together to match a color I observe?

Materials: Value scales and “sphere” worksheets, tempera paint in primary colors, paintbrushes, palettes (trays or paper plates, e.g.), sponge/paper towel, cups for water, color wheel template (traced onto watercolor paper)

Motivation: Images of naturalistic, monochromatic paintings. Do Now: All of these paintings are “monochromatic.” What do you think the prefix “mono” means? What do you think “chroma” means?

Students will learn:

- They can paint values to show how light hits an object, and to create the illusion of three-dimensional space on a two-dimensional surface

Students will:

- Define “monochromatic” and make value scales by using the self-mixed color, plus black and white
- Discuss how light and values affect the way we perceive three-dimensionality and color
- Create a painting of a monochromatic “sphere” by identify the values on their source image, and mixing paint to match those values