



School Lesson Plan

Art Educator: Adélie Nassar

School: Concordia University

Level / Course:

Beginner / Painting

Time Frame: 2 hours

Rational / Activity

Making eco-friendly paint.

Improving and respecting our environment.

Be inspired by the infinite possibilities of Nature.



Figure 1. Natural pigments

Learning Objectives

Experience the joy of making paint with naturally sourced pigments.

Demonstrate an understanding of how to combine basic ingredients to create unique colors without using chemicals.

Discover the fascinating history of natural pigments and their ethical use.

Assessment

Students will be able to mix and create their own paint, which they will document and reflect on in a journal.

Flashcards will be used to observe communication and collaboration skills.

A 5-question quiz at the end of work time will measure historical accuracy.

Question of Inquiry

- How is commercial paint made, and what is the process?
- Where do the ingredients come from?
- What is the carbon footprint of the paint industry?
- How can we intentionally make paint in symbioses with nature without VOCs?

Adaptations & Modifications

We will begin the course by discussing our favorite color, plant or tree.

During work time, unexpected color results may occur when experimenting/testing is part of the process.

Visual support, subtitled video and a calm space separate from the studio work will be accessible to everyone.



Figure 2. PH modifiers, 9X12



Visual Arts Competencies*		✓
To appreciate the history of artists and civilization using natural pigments.		
Identify connections between the work or production and what he/she/they felt.		
Cross-Curricular Competencies*		✓
To practice independence/research		
To practice journaling/writing		
To communicate appropriately		
To collaborate with classmates, teachers and materials		

Vocabulary / Concept		Definition	
Natural Pigment		Color extracted from nature: plants, roots, minerals.	
Binder		Ingredients holding the pigment to create texture .	
Solvent		Liquid used to blend the ingredients together and affects the consistency of the paint.	
Sustainability		Considering natural and eco-friendly impact on environment.	
VOCs		Volatile Organic Compound: chemical mostly used in paint as chemical solvents or chemical dryers such as toluene, xylene, acetone, ethyl acetate.	
pH		Less than 7: Acidic 7: Neutral Higher than 7: Alkaline	
Materials / Equipment (Educator / Student)			
Natural Pigments	Measuring spoons	White vinegar (pH 2 Acidic)	Baking soda (pH 9 Alkaline)
Flour	Popsicle sticks	pH scale image	White poster
Water bottles	Acrylic brushes	Portion cup	Tablecloth





Lesson Sequence	Time
Introduction: What is your favorite plant? We will get familiar with the pigments and introduce the impact of the commercial paint industry: CO2 and VOCs explained. A 10 min segment of the movie: “ <i>Seraphine</i> ” (2008) will be played, followed by a Flashcard activity with questions/answers about the artistic methods using minerals in Ancient Egypt.	45 min
Demonstration: Students will gather at a table for a demonstration on of how to make their own paint by using the pigment, binder, solvent and pH modifier. The color outcome will not be graded, as experimenting is key to finding sustainable options. Journaling the experience will be graded based on the student’s reaction to the activity, as well as participation, respect and the Historical Accuracy Quiz.	10 min
Work Time: All the ingredients will be labelled at a Mixing Table #1, where students can make their color before moving on to the next Table#2 set up for experimenting with the paint. (30 min) When they are finished, journaling and reflecting to the activity with thoughts, drawing or ideas is awaiting at a separate writing space along with calm music and a 5-question quiz. (15)	45 min
Clean-up: The use of a tablecloth will prevent stains on the tables. Each student is responsible for their own brushes and portion cups that will easily be rinsed and cleaned since they do not contain any grease or oil.	10 min
Closure: To slow down the energy at the end of the class, the goals is to encourage the students’ reflections on all the information provided, open further discussions, and allow time to share thoughts. The artworks will be showcased in the school indoor garden. Participation/respect of classmates and materials will be graded separately.	10 min



Student Artwork: Progression of natural pigments experiment, white poster 18 X 24.



Figure 3.4.5: Practicing collaboration is essential to highlight the importance of sharing space, thoughts and practice problem-solving.

Dissemination: The student's collaborative artwork will be available at the Concordia Greenhouse until December 23rd.

Reflection:

Upon researching the paint industry, I discovered that the largest portion of CO₂ emissions is primarily generated from the electricity production using coal or natural gas, which also is the common denominator polluter of the worldwide consumption. In relation to climate change, it is our duty to encourage conversations with the youth, actively listen to their concerns and brainstorm our potential actions ranging from minor improvements to a deeper understanding of larger issues.

Considering today's students' overload of information from a young age, we will travel back in time to experience making art without relying on manufactured products. By keeping our teaching creative and inspiring our classroom with sustainable activities, we can explore multiple directions to collectively reduce our pollution footprint. We can teach our students to reflect on their artmaking by conducting research, practicing questioning and experimentation, ultimately leading to documenting and cultivating every idea for a healthier environment.



Figure 6: Color wheel made from wooden ceiling moulding (28 X 28), featuring 12 natural pigments samples (1X1), heart shaped moss and an artificial plant placed in the middle.

References

Invaluable. (2018, October 9). *How Natural Pigments and Dyes Have Been Used in Art*. Invaluable.

<https://www.invaluable.com/blog/natural-pigments/>

Leray, E.N. (2023, September 7). *Acrylic vs. Oil Paints: VOC*. Artmaterials.ca.

<https://artmaterials.ca/acrylic-vs-oil-voc/#>

Ritchie, H., Rosado, P., & Roser, M. (2020). *Breakdown of carbon dioxide, methane and nitrous oxide emissions by sector*, Published online at OurWorldinData.org. [Revised January 2024]

<https://ourworldindata.org/emissions-by-sector>

Saif, S., Feroz, A., Khan, A., Akhtar, S., & Mehmood, A. (2015). Calculation and Estimation of the Carbon Footprint of Paint Industry, *Nature Environment and Pollution Technology*, 14(3), 633-638.

[NL-53-27-\(25\)D-250.pdf \(neptjournal.com\)](#)

The Museum of Modern Art. (2021, June 18). *A long-overdue cleaning reveals the vibrant colors in this 1928 painting / UNIQLO ARTSPEAKS*. YouTube.

<http://www.youtube.com/watch?v=ziORYvL24LU>