Exploring Your Site through Color, Texture, and Pattern

Activity Overview
Students discover, identify and analyze colors, patterns, and textures on the school grounds.

Objectives
Students will:

- Identify and analyze color on the school grounds (K-12)

- Discriminate colors that are dark-light, bright-dull (6-12)

- Identify and analyze patterns in the school environment, such as repetition of shapes, lines, colors

- Identify and analyze patterns in plants, flowers, trees

- Identify textures including rough-smooth, hard-soft, shiny-dull in a natural environment

- Record their observations on a field sheet for further discussion

Subjects Covered
Science, Math, and Art

Grades
K through 12

Activity Time
45 minutes on the school grounds, variable in the classroom

Season
Any

Materials
Box of crayons or color chips from a paint store, watercolors, sample construction paper swatchbooks; and paper and pencils

State Standards
Science:

Understand physical properties of objects (D.4.1)

Group/classify objects based on properties (D.4.2)

Observe & describe changes in objects (D.4.4)

Background

Color
Sunlight is composed of a spectrum of wavelengths from invisible, such as ultraviolet light, and visible light. The visible light range is composed of color light waves—red, orange, yellow, green, blue, and violet. The color that we see in an object is the reflected wavelength; all other wavelengths are absorbed. When we perceive a flower as blue, the flower is reflecting blue light waves and absorbing all other colors.

Vocabulary that students may use to identify and characterize color:

- Hue: the classification or name of a color (e.g., turquoise blue, olive green)

- Intensity: the brightness or dullness of color (e.g.,) vivid violet, bright, dim, dingy)

- Value: the amount of light (white) or dark (black) contained in color (e.g., light yellow, pale orange, dark red, deep purple)

Pattern
Pattern is the repetition of shapes, forms, lines, and colors in a specific rhythm. Patterns may be a decorative planned design such as a paisley pattern, or a natural and unplanned pattern such as a snowflake. Patterns may be regular, based on a repetition of units, such as bricks in a wall, or irregular, such as branches of a vine growing on the wall. Examples of patterns in nature include ripples in water, petals of flowers, and clusters of leaves.

Texture
Texture is the surface quality of an object. Texture is touched (tactile), such as by feeling the rough bark on a tree, or texture is seen (visual), such as by observing an uneven surface of a pitted rock. Surfaces may be rough, smooth, shiny, dull, hard, or soft.

Activity Description

Having an understanding of the diversity of colors, textures, and patterns in a natural area of the schoolyard can help inform the design and implementation of your restoration project. Go to the schoolyard and look for as many colors, textures, and patterns as you can find using the following directions.

Discover Color
Identify natural colors on the school grounds. Use a box of crayons, (or paint chips, water colors, sample paper swatchbooks) to match the colors of leaves, flowers, tree bark, rocks, mosses, lichen, soil, and so on. (Older students—describe the hue, intensity, and value of colors you see.) Mark on a piece of paper the different colors that you find.

Math:

Use reasoning abilities (A.4.1, A.8.1, A.12.1)

Communicate mathematical ideas (A.4.2), logical arguments (A.8.2, A.12.2)

Communicate logical arguments (A.8.2)

Analyze non-routine problems (A.8.3)

Develop effective oral & written presentations (A.8.4)

Analyze non-routine problems & arrive at solutions (A.12.3)

Develop effective oral & written presentations (A.12.4)

Organize work & present mathematical procedures & results (A.12.5)

Work with data in real-world situations (E.4.1)

Describe a set of data (E.4.2)

Work with data in real-world situations (E.8.1)

Organize & display data from statistical investigations (E.8.2)

Analyze information from organized & displayed data (E.8.3)

Work with data in real-world situations (E.12.1)

Organize & display data from statistical investigations (E.12.2)

Analyze information from organized & displayed data (E.12.3)

Observe Pattern

Look for patterns on the school grounds. Search for large and small patterns, regular and random patterns; and patterns of light and dark, shapes, colors, and lines. Draw the patterns on the same piece of paper.

Detect Texture

Identify textures on the school grounds. Look for rough and smooth, hard and soft, shiny, and dull textures. Make rubbings or represent texture by drawing various kinds of lines, dots, and dashes.

When you return to the classroom, classify the colors, textures and patterns into groups. Which colors are represented the most, the least? Are there more warm (red, orange, yellow) colors or cool (blue hues) colors? How many different textures and patterns did you observe? Is there a relationship between pattern and texture? Graph the results of these comparisons. Discuss and analyze why specific colors or patterns are dominant or not.

Extensions

- Return to the schoolyard to look for colors, patterns, and textures of human-made features. Compare these results with the natural elements of the schoolyard.

- Create artwork using the colors, patterns, and textures you find on the schoolyard.

- Repeat the activity in different ecosystems—prairie, woodland, wetland, or a city block.

- Discuss how this activity and related observations can inform the restoration design.

Additional Resources

- O'Connor, M. (1983). Living lightly in the city. Milwaukee, WI: Schlitz Audubon Center.

- Rotner, S. and Kreisler, K. (1992). Nature spy. New York, NY: Macmillan Publishing Company.

Assessments

- Describe the relationship between light and color. Why does a blade of grass look green?

- Describe different types of patterns you find on your school grounds.