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Colour Your World with Changes — the Camouflage Game*†

Steven Lott

Grade level: Grade 7.

Provincial curriculum links: Ontario.

Subject: Science and Technology - Life Systems, The Arts - Visual Arts, Mathematics.

Keywords: Seasons, Colours.

Description

Students predict the dominant colours found in their habitat or garden area. They visit their habitat site on a monthly basis, searching for coloured toothpicks which have been scattered throughout the garden area. Students gather the toothpicks and graph their results, determining the dominant colours for the month or season. Students use these dominant colours to develop a piece of visual art.

Curriculum Framework

Topic: Interactions within Ecosystems 7s11, 7s17
Strand: Life Systems
Specific Lesson Goals:

- Investigate ways in which natural communities within ecosystems (school gardens) can change, and explain how such changes can affect animal and plant populations.

*This exercise is adapted from Lott, Steven *Patterns, Plants and Playgrounds, Educational Activities for School Grounds, Intermediate Grades 4 to 7.* Evergreen. 2000.

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- Communicate the procedures and results of investigations for specific purposes and to specific audiences using media works, oral presentations, written notes and descriptions, charts, graphs and drawings.

Topic: The Arts
Strand: Visual Arts 7a46
Specific Lesson Goals:

- Produce a two-dimensional work of art that communicates a range of experiences for a specific purpose.

Topic: Mathematics
Strand: Data Management and Probability 7m102
Specific Lesson Goals:

- Display data on bar graphs, pictographs and circle graphs, with and without the help of technology.

Preparation

Preparation time: 30 minutes

Length of lesson: 90 minutes - split into two parts

Resources required:

- large variety of coloured toothpicks
- stop watch or timer
- graph paper
- drawing paper
- coloured pencils or markers or paint

Procedure

Part 1

1. Use permanent magic markers to colour toothpicks - about 20 of each primary and secondary colour plus 20 uncoloured.
2. Hide the toothpicks in easy and hard to find places within the habitat area. Place them so that some toothpicks match the background while others contrast with the background.

3. Ask students to predict how many of each colour will be found.
4. Students search the area for 5-10 minutes, gathering up any toothpicks they can find.
5. Record student colour totals. Discuss the results. Which colours were most easily found? Which colour were difficult to find?
6. Students return to the area to look again. Record any new toothpicks which are found. Count how many of each colour of toothpick were not found, and record the information.
7. Students graph their results on a bar graph to be kept and compared on a monthly or seasonal basis.

Part 2

1. Using the three most popular colours, students choose pencil crayons, watercolours, or pastels to create a two-dimensional work of art. The piece will illustrate the colours of the month or season.
2. Students will repeat this exercise on a regular basis (monthly or seasonally) to create a colour calendar for their art portfolio.

Discussion and Questions

Part 1

- Discuss which toothpicks were easy or hard to find. Why?
- Was it easier to find toothpicks the second time we searched? Why or why not?
- Why were all of the toothpicks not found?
- Was it difficult to find certain colours? Why?
- Would the results be the same if the experiment were attempted at a different time of day or night? Why?
- Would the results be the same if the experiment were attempted a month later? Why? What predictions can we make about a change in colour next month?
- What are the benefits of the colours changing every month/season?

- Does the predominance of one or two colours influence the types of animal life which can be found in and around the habitat? Why?
- Make connections to animal camouflage techniques and discuss how predators overcome the problems of finding camouflaged prey (i.e. they use other senses such as smell or they wait patiently until the prey moves).

Part 2

- Can we communicate the change of the season in our art by using three of the most predominant colours and shades of these colours to produce a piece of art?
- If we repeat this activity on a monthly basis, can we develop a calendar of colour changes in our habitat?

Student Evaluation

Develop a rating scale for students to determine how well they have completed the goals of the lesson.

Enrichment and Extension Activities

- This activity can be used to report upon the changing patterns of colour within the school's habitat area. Student graphs and art samples may be displayed within the school.
- Discussions and activities which help to illustrate the subtle changes which occur, and their impact upon the animals and plants of the habitat are encouraged.
- Repeat the activity using a paved area. Compare the results with those obtained from the schoolyard habitat area and predict the types of animal and plant life that would be able to survive in each area.

Connections to the Outdoor Environment

Questions to ask:

- Would the colour changes be the same in a rural community as within an urban community?

- Do the colour changes affect the ability of various insects and small mammals and birds to find shelter within a specific habitat?
- If specific habitat requirements are lacking, what will happen to various insect and animals populations?

Educator Notes

This lesson can be used to assist in the identification of some factors which contribute to the survival of populations within an ecosystem. This lesson plan can also be used to introduce the concept of change within a natural community. It could also be an opportunity in which an intermediate class is partnered with a Grade 2 class, examining change throughout the seasons. See the partner lesson plan "Where's My Lunch? Using the Colours of the Seasons to Find your Dinner" .

References

Canadian Nature Federation. *The Thicket Game.* Project Wild, Houston, Texas, 1995, p. 137.

DeVito, Alfred and Krockover, Gerald *Creative Sciencing: Ideas and Activities for Teachers and Children.* Foresman and Company, 1991, p. 90.