UNIT PLAN

Teacher Caryn Sobieski-VanDelinder Course Science Date 11/26/07 Grade Level 6

Unit Title Survivor Plant Duration of Unit 7 classes

Purpose of the Unit
This unit provides an opportunity to observe the adaptation of a plant placed under different environmental conditions. The students will utilize time-lapse photography to observe the progressive adaptation of the plant under its controlled and adapted condition.

Goals of the Unit
To...
• Observe and understand how the different weather conditions affect a plants survival.
• Complete a series of photographs for a time-lapse presentation for compare and contrast.
• Critically analyze and critique their work and the work of others during presentations.
• Build upon group work, communication, and cooperative skills during the entire process.

Rationale for the Unit
To sustain the life of any organism requires an environment conducive to survival. Providing the essential basic needs for life requires responsibility. Photography captures moments in time as a living organism changes and adapts to a new environment. These activities require preparation, time, and patience.

Standards Targeted
• Arts Standard No. 1; Creating, Performing, and Participating in the Arts
  o P.I. B; Intermediate; know and use a variety of sources for developing and conveying ideas, images, themes, symbols, and events in their creation of art.
• Arts Standard No. 3; Responding To and Analyzing Works of Art
  o P.I. B; Intermediate; identify, analyze, and interpret the visual and sensory characteristics that they discover in natural and human-made forms.

• Science Standard No. 4; Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
  o The Living Environment, Intermediate, Key Idea 5.1; (Organisms – Dynamic Equilibrium) Organisms maintain a dynamic equilibrium that sustains life. Students compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium. 2. An organism’s overall body plan and its environment determine the way that the organism carries out the life processes.

Comprehensive Objectives of the Unit
Upon completion of this unit of study, students should be able to
1. Compare/contrast the environmental factors that affect the survival of a flowering cyclamen plant as a controlled and adapted experiment.
2. Photograph a series of images to create a visual representation of the controlled experiment and the adaptation of the cyclamen plant.
Sequential Objectives

Lesson One (1 class)
1. Discuss and list the available choices for environmental adaptation.
2. Choose an environmental factor to move or apply to a plant for observation.

Lesson Two (4 classes)
1. Photograph the cyclamen in a controlled situation under its ideal conditions.
2. Record observations of the plant during a timed session (30 minutes).
3. Photograph a plant in a changed environment under new conditions.
4. Record observations of the adaptation during a timed session (30 minutes).

Lesson Three (2 classes)
1. Evaluate and discuss findings from recorded observation and photographs.
2. Critically analyze their own work and the work of other groups.

Unit Overview
The students will begin by discussing the different environmental factors that can contribute to a plant adapting to a new environment. What will happen when the plant is in full sun, constant shade, wind/gusts, drought, excessive rain, or darkness? How does a plant respond when faced with any of these conditions? The students will have the opportunity to photograph their plant as a series of pictures. This photographic process allows the students to document the moments of a plant adapting over a specified time period, offering a visual and detailed review of the progression. Students will be able to compare and contrast the controlled and adapted photographs to determine results of environmental factors.

Assessment of Student Achievement
The assessment of this project will be based on group work and status of project completion and evaluation. Was the group successful in recording all of the data properly? Did the group work together to achieve results? Was the group successful in creating a series of images for both the controlled and adapting plant? Is the group able to critically discuss their process and deduce conclusions about their results based on the environmental factors?
Goal(s) of the Lesson
To…
• Develop a comprehension of environmental factors that affect a living organism.

Standard(s) Targeted
• Science Standard No. 4; Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
  o The Living Environment, Intermediate, Key Idea 5.1; (Organisms – Dynamic Equilibrium) Organisms maintain a dynamic equilibrium that sustains life. Students compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium. 2. An organism’s overall body plan and its environment determine the way that the organism carries out the life processes.

Instructional Objectives of the Lesson
The student will:
1. Discuss and list the available choices for environmental adaptation.
2. Choose an environmental factor to move or apply to a plant for observation.

Rationale for the Lesson
An environment conducive for survival is necessary to sustain the life of any organism. By providing the essential basic needs for life, the students will build on their skills of responsibility, commitment, and patience.

Materials and Equipment Needed
A healthy, nurtured cyclamen plant
Animation/video simulating different weather conditions (full sun, constant shade, wind/gusts, drought, excessive rain, or darkness)

Instructional Procedure and Approximate Timeline
Introductory Activities by Science teacher - (5 minutes)
Open class discussion to list which environmental conditions a plant could be placed under for adaptation to occur; full sun, constant shade, wind/gusts, drought, excessive rain, or darkness.
Instructional Activities by Science teacher - (5 minutes)
  Show the class an animation/video that illustrates some of the possible environmental conditions.

Guided Practice/Independent Practice – (35 minutes)
  1. Each student creates a list of environmental conditions.
  2. The class breaks up into groups of three to discuss their lists.
  3. The group combines their lists to make one common list.
  4. A group speaker lists and explains their group choices.
  5. The class works as a larger group to create a single common list.

Closure by Science teacher (5 minutes)
  Review the different environmental conditions the class discussed. The environmental adapted conditions will be written on paper slips by the Science teachers and placed inside of a paper bag. Each group will randomly choose a condition from the paper bag that their plant will be photographed in during adaptation.
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ELP689  
Lesson Plan 2 – Time-Lapse Photography

LESSON PLAN 2

Teacher Caryn Sobieski-VanDelinder  
Class Science  
Date 11/26/07  
Grade Level 6

Unit Survivor Plant  
Lesson Topic Time-Lapse Photography  
Duration 4 - 50 minute lessons

Goal(s) of the Lesson
- Observe how the different weather conditions affect a plant’s survival.
- Complete a series of photographs for a time-lapse presentation.

Standard(s) Targeted
- Science Standard No. 4; Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
  - The Living Environment, Intermediate, Key Idea 5.1; (Organisms – Dynamic Equilibrium) Organisms maintain a dynamic equilibrium that sustains life. Students compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium. 2. An organism’s overall body plan and its environment determine the way that the organism carries out the life processes.

- Arts Standard No. 1; Creating, Performing, and Participating in the Arts
  - P.I. B; Intermediate; know and use a variety of sources for developing and conveying ideas, images, themes, symbols, and events in their creation of art.

Instructional Objectives of the Lesson
The student will:
  1. Photograph a plant in a controlled situation under ideal conditions.
  2. Record observations of the plant during a timed session; 30 minutes.
  3. Photograph a plant in a changed environment under new conditions.
  4. Record observations of the adaptation during a timed session; 30 minutes.

Rationale for the Lesson
An environment conducive for survival is necessary to sustain the life of any organism. By providing the essential basic needs for life, the students will build on their skills of responsibility, commitment, and patience. Photography captures moments in time as a living organism changes and adapts to a new environment.

Materials and Equipment Needed
- Graph paper
- Pencil or pen
- 5 digital cameras
Instructional Procedure and Approximate Timeline

Introductory Activities by Teaching Artist – (5 minutes each)
- Class 1 – Review photography techniques: lighting, focal point, and camera functions.
- Class 2 – Refresh photography techniques. Focus on any camera function questions.
- Class 3 – Refresh photography techniques and procedure.
- Class 4 – Refresh photography techniques and procedure.

Instructional Activities by Teaching Artist – (5 minutes each)
- Class 1 – Demonstrate proper camera techniques.
- Class 2 – Refresh camera techniques.
- Class 3 – Discuss concerns for repeating photography process.
- Class 4 – Reinforce consistency when photographing the plant.

Guided Practice/Independent Practice – (35 minutes each)
- Class 1 – During the experiment, a 30-minute video will be shown on the projection screen about ideal conditions for plant survival for additional knowledge during down time between every three minutes. The students should take notes about what they notice, think, and wonder about the video. The Science teacher answers video related questions. The Teaching Artist will assist with camera questions and difficulties.

1. The class breaks up into their groups of three.
2. Each group receives a healthy plant placed in a controlled environment.
3. The group decides together who will work each task during the experiment.
4. One student will photograph the plant every three minutes for 30 minutes total.
5. Another student will record any changes in appearance or survival status.
6. A third student will be responsible for alerting the group every three minutes.

Class 2 (Students in each group will take on different roles during the 2nd experiment.)
During the experiment, a 30-minute video will be shown on the projection screen about one of the conditions for plant adaptation to provide additional knowledge during down time between every three minutes. The students should take notes about what they notice, think, and wonder about the video. The Science teacher answers video related questions. The Teaching Artist will assist with camera questions and difficulties.

1. The class breaks up into their groups of three.
2. Each group receives a healthy plant placed in their new chosen environment.
3. The group will decide together the rotation for task assignments for 2nd experiment.
4. One student will photograph the plant every three minutes for 30 minutes total.
5. Another student will record any changes in appearance or survival status.
6. A third student will be responsible for alerting the group every three minutes.
Class 3 (Day 2 of adapted experiment) – During the experiment, a 30-minute video will be shown on the projection screen about another one of the conditions for plant adaptation to provide additional knowledge during down time between every three minutes. The students should take notes about what they notice, think, and wonder about the video. The Science teacher answers video related questions. The Teaching Artist will assist with camera questions and difficulties.

1. The class breaks up into their groups of three.
2. Each group receives a healthy plant placed in their new chosen environment.
3. The group will decide together the rotation for task assignments for day two of the 2nd experiment.
4. One student will photograph the plant every three minutes for 30 minutes total.
5. Another student will record any changes in appearance or survival status.
6. A third student will be responsible for alerting the group every three minutes.

Class 4 (Day 3 of adapted experiment) – During the experiment, a 30-minute video will be shown on the projection screen about another one of the conditions for plant adaptation to provide additional knowledge during down time between every three minutes. The students should take notes about what they notice, think, and wonder about the video. The Science teacher answers video related questions. The Teaching Artist will assist with camera questions and difficulties.

1. The class breaks up into their groups of three.
2. Each group receives a healthy plant placed in their new chosen environment.
3. The group will decide together the rotation for task assignments for day three of the 2nd experiment.
4. One student will photograph the plant every three minutes for 30 minutes total.
5. Another student will record any changes in appearance or survival status.
6. A third student will be responsible for alerting the group every three minutes.

Closure (5 minutes each)
At the end of each class, the students will report to their group on any changes in the plant that were seen visually during the process, and record that data. The class as a whole group will discuss the difficulties they encountered during the process.
LESSON PLAN 3

Teacher Caryn Sobieski-VanDelinder  
Class Science  
Date 11/26/07  
Grade Level 6

Unit Survivor Plant  
Lesson Topic Image Construction/Critique  
Duration 2 - 50 minute lessons

Goal(s) of the Lesson

To…
• Critically analyze a series of photographs and determine the most successful results.
• Critically compare/contrast their groups work and the work of others during presentations.

Standard(s) Targeted
• Arts Standard No. 1; Creating, Performing, and Participating in the Arts  
  o P.I. B; Intermediate; know and use a variety of sources for developing and conveying ideas, images, themes, symbols, and events in their creation of art.
• Arts Standard No. 3; Responding To and Analyzing Works of Art  
  o P.I. B; Intermediate; identify, analyze, and interpret the visual and sensory characteristics that they discover in natural and human-made forms.

Instructional Objectives of the Lesson

The student will:
1. Organize and display time-lapse images for individual and group critique.
2. Evaluate and discuss findings from recorded observation and photographs.

Rationale for the Lesson

Time-lapse photography allows for the opportunity to evaluate changes and adaptations more precisely, giving additional time for detailed inspections. A series of images can be reviewed, compared and contrasted through the visually imagery, instead of from memory.

The images can also be evaluated and critiqued by other groups and each set of pictures can be compared as a whole. The critical analysis gives each student the opportunity to see many scenarios of environmental adaptations in a limited amount of time.

Materials and Equipment Needed

Printed pictures (3 x 5 inches)  
Color photo printer  
Photo paper for digital prints  
White foam board (24 x 36 inches)  
Scissors  
Double-sided tape  
Markers

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Lesson Plan3 – Image Construction/Critique
**Instructional Procedure and Approximate Timeline**

**Introductory Activities by Teaching Artist - (5 minutes each)**
- **Class 1** – Discuss procedures for uploading to the server and printing photos.  
  Also talk about the quantity of photos needed for the presentation boards.
- **Class 2** – Review proper critique procedures.

**Instructional Activities by Teaching Artist - (5 minutes each)**
- **Class 1** – Demonstrate connecting the cameras to the computer and uploading photos.  
  Show an example of desired layout for the presentation boards.
- **Class 2** – Demonstrate an example of proper critique etiquette using a group project.

**Guided Practice/Independent Practice – (35 minutes each)**
- **Class 1** – The Teaching Artist will assist the students with compiling their presentations.
  1. As a group, the students decide which ten adapted photos are most expressive.
  2. The group works together to cut out photos and arrange them in a progressive time-lapse on a presentation board.
  3. Tape down the photos after they have been arranged in an agreed upon layout.
  4. Be sure to have both the controlled and adapted photos displayed for compare and contrast.
  5. The group decides together on a name to describe their project theme and writes the name across the top of the presentation board in large letters.
  6. Use the remaining time to discuss in groups any observations utilizing notes taken during each experiment. How do the notes support your findings when critically analyzing the images? What did the videos make you think and wonder?

- **Class 2** – Critique led by the Teaching Artist with support from the Science teacher.
  1. Each group displays their finished project at the front of class.
  2. Each group comments on their process, results, and critically analyzes their own work. What new knowledge did they gain from this process?
  3. The whole class is encouraged to give a final critique about the work of each group.

**Closure by the Teaching Artist Class 1, Science teacher Class 2 (5 minutes each)**
- **Class 1** – Review the importance of having both sets of photos for comparison.
- **Class 2** – Reinforce the process and purpose of this project. Briefly discuss our successes along with the processes that need additional review.