
So - What's Happening Here? On this Old Christmas Tree Farm



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Overview: An overgrown Christmas tree farm next to the school is undergoing change. Some of the trees are dying while others appear sickly. Students gather and organize data in an attempt to solve this ecological "mystery." (This format could be used to solve any "local" ecological mystery.)

Curriculum Connection: Students have or are concurrently studying biomes and ecosystems in science. In addition, they have participated in a literature circle based on Jean Craighead George's ecological mysteries. An annotated bibliography and lesson plan are available for the literature circle.

Teaching Level: 5 - 6

Time Frame: One to two weeks depending upon schedule. Easy to modify.

Connection to National Geography Standards:

The World in Spatial Terms

- How to use maps, and other geographic representations, tools and technologies to acquire, process and report information from a spatial perspective

Environment and Society

- How human actions modify the physical environment

Connection to Oregon State Standards:

Geography

- Examine and prepare maps, charts and other visual representations to locate places and interpret geographic information
- Describe ways people have adapted to and been influenced by their physical environment
- Distinguish essential and incidental information clarifying an issue

Science

- Identify interactions among the parts of a system
- Organize evidence of change over time
- Use basic science skills to observe, measure, predict...

Materials List:

- Thermometer, soil & air
- Sling psychrometer
- Cloud chart
- Beaufort Scale
- compass
- rain gauge
- 50' measuring tape
- Field journal data sheet
- Quinlan, Susan E. (1995). The Case of the Mummified Pigs and Other Mysteries in Nature. Pennsylvania: Boyds Mills Press. ISBN: 1-878093-82-7.

Inquiry Question: What ecosystem components and human interactions are coming together on our schoolyard to create the sickly and dying forest?

Objectives:

- Students will use field skills to gather and organize data to assess changes happening in the former Christmas tree farm.
- Students will identify human actions which may have precipitated this mystery.

Background:

This practical, field-oriented lesson assesses whether students can transfer critical thinking and literature in the science content area readings into solving a similar ecological crisis in their own ecosystem. In this case, a school yard has an overgrown Christmas tree farm and a student-created pond undergoing change. Students gather data including mapping the site to solve the "mystery."

Introduction:

1. Remind student of previous studies in science and social studies regarding biomes and ecosystems.
2. Make reference to the literature circle of Jean C. George's books
3. Review knowledge using a *K-H-W-L* chart. (attached.)

Procedures:

1. Read an ecological mystery from Susan Quinlan's book, The Case of the Mummified Pigs and Other Mysteries in Nature.
2. Inform students that they will be conducting a field study and make observations like Spinner and Alligator in The Case of the Missing Cutthroats in order to solve the mystery of the Christmas tree farm and disappearing pond. The outcome of the study will be an understanding of why change occurs and suggestions about what we can do.
3. Students look at the site with teacher to familiarize themselves with it. No notes.
4. In classroom, brainstorm - what did you observe, what are your questions, what should our field data sheet look like, what do we need to do first. Information is recorded on flip chart paper and left displayed.
5. Form teams to tackle each category decided upon. Make sure there is planning time to meet objectives
6. Meet and review progress. Solve problems. Once students have agreed on a field form, prepare and copy for students. Contact people needed to help or to interview. Arrange for classroom visit or telephone interview.
7. Make several field visits with objectives such as map the site, identify trees, shrubs, flowers, animals present. Set up long-term data-gathering sites and flag. Start collecting and recording data.
8. Make 10 to 12 visits and record.
9. Start data analysis.
10. Prepare visual data displays by teams and write speeches. Answer the inquiry question.
11. Present findings to several groups such as another class, school board, parents or at a Family Geography Night.

Extensions & Modifications:

- Deal with an issue found in the newspaper
- Complete the literature circle unit using Jean C. George's ecological mysteries
- Conduct the "Can Do" lesson from Project Wild
- Complete the lessons in the "Patterns of Change" storyline in Project Learning Tree

Assessment:

1. Use a simple criteria guide for the visual displays (sample attached).
2. Use the State of Oregon scoring guide to score the verbal presentation.
3. *Geography:*
 - Notes assessed for completeness
 - Student self-reflection & learning's
 - Students teach basic field study skills at a Family Geography night
 - Present to a field geography class from WOU or OSU or TC's in area for feedback

Name(s):

Date:

Solving An Ecological Mystery

What I Know

How I Know It

What I Want to Know

What I've Learned

Name: _____
 Ecological Mystery Visual Checklist
 Date: _____

Checklist for Visual Display Ecological Mystery

_____ 1. **LEGIBILITY**

- 6 5 4 3 2 1 NA
- 4 3 2 1 NA
- 4 3 2 1 NA
- 6 5 4 3 2 1 NA
- 6 5 4 3 2 1 NA
- the room 6 5 4 3 2 1 NA
- able to the audience
- 4 3 2 1 NA
- 6 5 4 3 2 1 NA

_____ 2. **ART**

- 4 3 2 1 NA
- 4 3 2 1 NA
- 6 5 4 3 2 1 NA
- 1 NA

_____ 3. **GENERAL APPEARANCE**

- 6 5 4 3 2 1 NA
- 4 3 2 1 NA
- wise crumpled
-
- 6 5 4 3 2 1 NA

TOTAL POINTS EARNED:
ADDITIONAL COMMENTS:

- used pen or marker as appropriate
- erased all guiding pencil marks 6 5
- letters are all the same size 6 5
- used upper case & lower case letters
- posters & displays can be read at 4'
- overheads can be read in the back of
- papers & computer presentations read-
6 5 4 3 2 1 NA
- if handwritten, in ink and legible 6 5
- if computer, font is 12 point or more
- sized so that it can be easily seen 6 5
- appropriate for the subject 6 5
- color is used, or if appropriate pen/ink
- pencil guidelines erased 6 5 4 3 2
- No erasure holes or leftover crumbs
- Name is on paper as instructed 6 5
- Product is not crumbled, torn or other-
6 5 4 3 2 1 NA
- Pride in work shows 6 5 4 3 2 1 NA
- Appropriate display medium chosen

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