Reading the River Summer 2006

Causes of Pollution
And
How You Can Help

Grade levels 3rd, 4th, and 5th

Subject Areas
Science, Ecology, Biology, Arts and Humanities, Photography, Social Studies, Community Leadership, Vocational Studies, and Political Engagement

Richard Thomas Rabe
John G. Carlisle, Covington Independent School District
Kenton County
9/14/06
Name: Richard Thomas Rabe  Date: 9/14/06  Age/Grade Level: 3rd, 4th, and 5th

# of Students: 25  # of IEP Students: 8  # of GSSP Students: 2  # of LEP Students: 4

Subject: Science/Physical Education  Major Content: Science, Ecology, ART, and Social Studies

Unit Lesson Length: 7 to 10 weeks  Causes of Pollution: 1 hour First Session  1 hour 2nd Session.

Unit Title: Causes of Pollution and How You Can Help
Lesson Number and Title: 7007COP Causes of Pollution-------------

Context

- **Causes of Pollution** along with Reading the River curriculum will empower the students to understand the importance of clean water and how delicate the ecosystems are that are effected by it (Lesson plan #1007OGIW On the Ground In the Water). Advocacy and leadership plus giving the student Knowledge, Skills, and Abilities to educate the public of keeping the water clean and to make polluters accountable for violations and the clean up of said violations.

- The student will be able to contact the proper enforcement agency when they witness said violations and also contact local media as instructed in the *Helpful Authorities Local, State, Federal, and Worldwide* (Lesson plan #2007HALSFW.)

- The students will identify pollution, possible causes, and solutions to the problems.

- Students will test water (Lesson plan #3007WV Water Velocity) at adoption site after they visit the Water Sanitation Department (Lesson plan #007SDWS Student Directed Water Study) and #4007MI Macro-Invertebrates.

- Students will take digital photographs of wildlife in Lesson plan #5007TPOWL Taking Photographs of Wild Life and use the photos to develop nature scenes from the test site to use in the design and decoration of pollution poster. Knowledge and skills derived from lesson plan #6007DPOWL Drawings and Painting of Wild Life will guide student’s layout and thematic design of poster.

Objectives

The student will be able to:

1. Identify and discuss different kinds of pollution.
2. Identify and discuss sources of pollution.
3. Discuss and explain the importance of keeping the environment free of pollution.
4. Student will identify wildlife that they encounter.
5. Student will sketch, draw, and paint AH-E-4.1.35 from photographs they have taken of wildlife AH-E-4.1.33 in a nature scene representative of past field trip location. AH-E-4.1.42 and 4.2.37
6. Student will participate in Discover Scuba and learn new skills, and use scuba equipment (Lesson plan #8007PADIDS Professional Association of Dive Instructors Discover Scuba).
7. Student will answer questions on how they can identify pollution underwater and who to report it to.
8. Student will create posters and artwork to help educate the public about pollution. AH-E-4.1.41
9. Student will examine macro sorting sheet and rate the water quality at different dates.
Connections
The combination of Science, Arts & Humanities, and Vocational Studies the student will meet KERA goals
- Science 2.1 through 2.13
- Arts & Humanities 2.22 through 2.26 and 3.3 through 3.6
- Vocational Studies 5.0 through 6.3

Assessment Plan
The assessment will follow goals and academic expectations within the Six Learning goals of KERA Kentucky Educational Reform Act. 1.0 through 1.15, 2.1 through 2.13, 2.22 through 2.26, 3.3 through 3.6, 5.0 through 6.3.

<table>
<thead>
<tr>
<th>Learner Objective Number</th>
<th>Type of Assessment</th>
<th>Description of Assessment</th>
<th>Adaptations and/or Accommodations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1</td>
<td>Formative</td>
<td>Open Response</td>
<td>Extended time IEP</td>
</tr>
<tr>
<td>Objective 2</td>
<td>Summative</td>
<td>Written report portfolio</td>
<td>Word banks IEP</td>
</tr>
</tbody>
</table>

Resources, media and technology
Lesson vocabulary cards, photographs of water, air, and land pollution, chart paper, "Let's Stop Pollution" poster, poster board, crayons, markers, variety of sizes of cardboard boxes, poster or tempera paint, Kleenex, soap, water, variety of pollution bumper stickers, videos on pollution and scuba diving. Books on wildlife photography, drawing and painting; Audubon’s Birds of America is an excellent reference. Open mind and a smiling face.

4.1 Kentucky Core Content Goals
- **AH-E-4.1.41** Create artwork using the elements of art and principles of design.
- **AH-E-4.1.42** Use a variety of media and art processes to produce two-dimensional (2-D) and three-dimensional (3-D) artwork.
- **AH-E-4.1.31** Describe works of art using appropriate art terminology (subject matter, ideas, elements of art, principles of design).
- **AH-E-4.1.32** Art elements - line, shape, form, texture, and color (primary and secondary hues) and color groups (warm, cool, neutral)
- **AH-E-4.1.33** Principles of design - organization of visual compositions: emphasis (focal point), pattern, balance (symmetry), contrast (light/dark)
- **AH-E-4.1.34** Describe a variety of media and art processes used to produce two-dimensional (2-D) and three-dimensional (3-D) artwork.
- **AH-E-4.1.35** Media - crayon, pencil, paint, fabric, yarn, clay, paper, papier-mâché (used to produce artworks)
- **AH-E-4.1.37** Art processes: two-dimensional - drawing, painting, and collage
**Activity Procedure**

**The Teacher:**

1. Begin the activities by displaying and reviewing the lesson vocabulary (Poster boards, chalk, pastels, scuba diving, regulator, buoyancy compensator, diving gear, pollution, surroundings, litter, environment, toxic waste, macro-invertebrates, wild life).

2. Discuss the displayed pictures of water, air, and land pollution. Have students identify what is wrong in each of the pictures displayed. Write the students responses underneath each of the pictures. Remind the students that pollution is anything that harms our surroundings and that people cannot survive without clean air, water, and land. Stress that pollution is a responsibility and concern of all people in every community. View pictures of wild life.

3. Ask students to "Brainstorm" to complete a list of ways that they can help to stop pollution. Examples: not put garbage into the lakes and streams, walk or ride bikes whenever possible, pick up litter. List the student’s responses on a poster titled "**Let's Stop Pollution**". Stress the importance that because we use many things in our surroundings shared by others, everyone must work to stop pollution of the air, water, and land. Students will then have a variety of activities to teach them about the causes and effects of pollution. Talk about the effects of pollution on wild life.

1. Provide students with a half sheet of poster board and crayons. Have them make a poster to inform others about pollution. Display the posters around the school. Watercolors, color pencils, and ink.

2. Provide students with boxes and paint. Have them make "litter boxes" with labels and decorations that state why it is important not to litter. Place the boxes in areas around the school or home.

3. Have students wash the outside of a window that is easy to reach. A few days later, let them wipe the same window with a clean tissue. Discuss possible reasons the window became dirty (air pollution). Set up for second lesson plan.

4. Provide students with materials to make replicas of bumper stickers illustrating warnings and laws concerning pollution. Suggestions: NO LITTERING, NO TRUCKS, NO DUMPING, NO BURNING.

5. Fieldtrips to local companies or industries that deal with pollution prevention.

- Water and Sanitation department
- Central Coast Dive Center
- Diver’s Alert Network
- Bank Lick Creek
- Pioneer Park
6. Guest Speakers on pollution prevention and/or environmental safety.

- Mark the Hydrologists  Tommy Evans Central Coast Dive Center
- Brian Reeder, Ph.D.  Yvonne Meichtry, Ed.D.
- Sandy Schomaker Community Education, Sanitation Department

7. Pass out medical forms and permission slips for Discover Scuba course.

- View video on scuba diving
- Suit up and enter water
- Follow directions on breathing with regulator and go underwater for five minutes
- When comfortable go down to the ten foot level and swim around on bottom
- Get out and debrief on dive and how they felt with being underwater and what it means if the water you dive in is polluted

Explain the importance of clean clear water for the environment and the wild life supported by rivers, streams, lakes, ponds, and seas.

**Questions**

1. Name four reasons why streams become polluted.
2. Describe how wildlife is affected when streams are polluted.
3. Name two people that you can contact to report illegal dumping.
4. Explain how and why you chose the colors and the layout of your poster.

**Time Schedule**

10:00am – 10:05am Attendance, students will copy agenda and homework assignment from board. Journal writing if they have time left.

10:05am – 10:15am Review of previous days material and swap homework answers to be graded by each other.

10:15am – 10:45am Presentation of new material and hand out supplies while setting up photos of pollutions. Show example of three excellent quality posters and tell why they earned the highest ratings.

10:45am – 10:55am Short critic on how posters are developing.

10:55am – 11:00am Review of positive outcomes and possible remedies of negative behavior.
References for Lesson Plan on Reading the River

Divers Alert Network (DAN) is a 501(c)(3) non-profit medical and research organization
Duke University Medical Center (DUMC)


[3] Colburn, Theo; Dumanoski, Dianne; Myers, John Peterson; "Our Stolen Future," Penguin Group


EPA Wants Light Trucks to Meet Car Standards; Air Quality, Costs Could Be Affected, Washington Post, E1 (Feb. 18, 1999).


Testimony of Paul Wuebben, South Coast Air Quality Management District, to the California Environmental Protection Agency (Feb. 19, 1999).
Making A Poster : Let’s Stop Pollution

Teacher Name: Mr. Rabe

Student Name: ________________________________________

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphics - Relevance</td>
<td>All graphics are related to the topic and make it easier to understand. All borrowed graphics have a source citation.</td>
<td>All graphics are related to the topic and most make it easier to understand. All borrowed graphics have a source citation.</td>
<td>All graphics relate to the topic. Most borrowed graphics have a source citation.</td>
<td>Graphics do not relate to the topic OR several borrowed graphics do not have a source citation.</td>
</tr>
<tr>
<td>Graphics - Clarity</td>
<td>Graphics are all in focus and the content easily viewed and identified from 6 ft. away.</td>
<td>Most graphics are in focus and the content easily viewed and identified from 6 ft. away.</td>
<td>Most graphics are in focus and the content is easily viewed and identified from 4 ft. away.</td>
<td>Many graphics are not clear or are too small.</td>
</tr>
<tr>
<td>Required Elements</td>
<td>The poster includes all required elements as well as additional information.</td>
<td>All required elements are included on the poster.</td>
<td>All but 1 of the required elements is included on the poster.</td>
<td>Several required elements were missing.</td>
</tr>
<tr>
<td>Labels</td>
<td>All items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.</td>
<td>Almost all items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.</td>
<td>Several items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.</td>
<td>Labels are too small to view OR no important items were labeled.</td>
</tr>
</tbody>
</table>

Date Created: Sep 14, 2006 09:33 am (CDT)