

# The 5 E's: A Model for Designing Lessons for Inquiry Planner<sup>1</sup>

## Logistics Information:

- a. Environmental Education Learning Cycle Example
- b. A synthesis of *Project WILD*
- c. Iowa Core Essential Concepts  
Earth and Space: Understand and apply knowledge of the structure and processes of the earth system and the processes that change the earth and its surface.
- d. Developed April 16, 2010

**Background Information** (What do observers need to know about our learners, classroom and school?): Schools will vary.

## Materials Required:

Poster board

Overhead copy of student page 158

*The Cat in the Hat Comes Back* by Dr. Seuss (book or video).

## Time Period:

30 minute preparation time, Two to three activity times 50 minutes each.

**Name of the Unit:** *Pollution Search* (*Project Learning Tree*, p. 153-158)

- I. Plan of the Unit
  - a. Goal of the unit: Students will identify forms of pollution and describe the effects of various pollutants on people, wildlife, and plants; students will describe relationships between various forms of pollution and human actions.
  - b. How this unit related to the curriculum:

Previous Grade/Course	Current Grade/Course	Next Grade/Course
3 <sup>rd</sup> Grade (Earth Science)/ Recycling	4 <sup>th</sup> Grade (Earth Science) Ecology or Earth Week, follow up to Earth Materials	5 <sup>th</sup> Grade (Earth Science)/Environments, Water Planet

- c. Lesson Plan: Phases in a 5E Learning Cycle (in no particular order) are Engage, Explore, Explain, Elaborate, and Evaluate. There may be multiple experiences in each phase.

<sup>1</sup> Adapted from *Teacher to Teacher: Reshaping Instruction Through Lesson Study* (NCREL, 2002)

Phases of the lesson: learning activities and key questions (and time allocation)	Student activities/ anticipated student reactions or responses	Teacher's response to student reactions/ Things to remember	Evidence of Student Understanding
<p><b>ENGAGE:</b> Post the picture on page 158, <i>Project Learning Tree</i>, on the overhead or board (Pollution Scene). Discuss what the students see.</p> <p><b>EXPLORE:</b> Read <i>The Cat in the Hat Comes Back</i> by Dr. Seuss (or watch the video). Select questions from pages 155-156, <i>Project Learning Tree</i>, pose to small groups of students</p> <p><b>EXPLAIN:</b> Students create charts on water pollution, land pollution, air pollution, noise pollution, and hazardous waste.</p>	<p>Students list what they see.</p> <p>Students respond to questions posed by teacher.</p>	<p>Teacher points out pollution items students may have missed. Teachers should use Answers to Assessment page 157, <i>Project Learning Tree</i>.</p> <p>Teacher should pose the following situation: if you were the person who lived next to the Cat in the story, what would you do about the situation?</p> <p>Teacher can relate the concepts of pollution and safety: how can we make our neighborhood safe if there is pollution?</p> <p>Teacher needs to make sure that students understand there is more than one kind of pollution.</p>	<p>Students create a comprehensive list of what they see in the picture.</p> <p>Students come up with ideas to keep neighborhoods safe from pollutants.</p> <p>Students may begin discussions on causes and cures of pollution.</p>
<p><b>ELABORATE:</b> Introduce the concept of acid rain, and how one type of pollution can affect others.</p>	<p>Students can start to make connections from one type of pollutant (air) to another (water).</p>	<p>Help with discussion on showing how these relate.</p>	<p>Students can discuss how their specific form of pollution can affect others.</p>

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<b>EVALUATE:</b> Go on a block walk and identify common pollutants in the area.	Student should be able to identify pollution as air, water, noise, land, and hazardous.	Teacher suggests ideas of how to keep their communities clean of pollutants.	

**EXTENSIONS**

What is a “voom” from the Dr. Seuss book? Have students create what it is and exactly what it does. Be a Voom salesperson!  
 Students create a new symbol for Hazardous Waste, explaining what it represents.  
 Students can explore the effect of pollution on plants and animals.  
 Organize a service projects such as cleaning up litter.

**ADDITIONAL RESOURCES**

*The Lorax* by Dr. Seuss.  
*Flush* by Carl Haasen.  
*Wumpworld* by Bill Peet.  
*Dr. Art’s Guide to Planet Earth For Earthlings Ages 12 and Up* by Art Sussman.  
 Enrichment activities, *Project Learning Tree*, p. 156.