No Place Like Periwinkle

Linking Life and Environmental Science with Literature and the Arts

The Author's Lesson Plans for the Teacher

About Read for Science: For two decades, Dr. Merrie Koester has been creating curriculum resources that feature youth becoming empowered because they figure out how to solve problems themselves. They use creative problem solving and critical thinking as they acquire and apply STEM knowledge and skills, together with creative competencies. In the process, they become productive, pro-active resilient citizens who know how to use their voices.

SCIENCE STANDARDS ADDESSED IN THIS NOVEL: NGSS Science and Engineering Practices and Cross-Cutting Concepts, grades 4-9 / NGSS DCI - Life Sciences and Earth Sciences

TIME FRAME for this novel: Will vary according to your own scheduling demands. Many teachers dive in and out of this or another Agnes Pflumm novel over the course of a quarter or semester. Note: Because some one in five students struggle with some kind of dyslexia, a teacher reading the book aloud with students is recommended. Requiring students to engage in popcorn reading can be degrading for the dyslexic learner. However, acting out scenes from a book chapter is way for all students to shine!

MATERIALS: To enhance both literacy and independent thinking, one copy of *No Place Like Periwinkle* per student is optimal. A classroom set can be rotated among teachers in the grade level using the book. ***Note:*** The Agnes Pflumm novels are designed to be integrated either horizontally or vertically in your school's curriculum. For example, your school might use *Agnes Pflumm and the Stonecreek Science Fair* at one grade level and *No Place Like Periwinkle* at the next, or both in the same year. Where you choose to any of the novels will depend on the reading level of your students as well as what year(s) science projects and environmental science are taught. *Pond Scum and Agnes Pflumm* has content which covers a broad array of life and environmental science standards. *Agnes Pflumm and the Secret of the Seven*, written primarily for students in grade 8 or above, addresses historic evidence of human impact not only on the ocean but on each other, taking a deep dive into multiple socioscientific issues.

Note: To truly experience the "Seeing through Drawing" component of this curriculum, students should have some kind of sketchbook, pencil, pen, and simple watercolor or colored pencil set. In the reference section at the back of the book are suggestions for preparing to teach natural science through drawing.

School District Book Discount: School districts can click here to receive a 20% discount on all novels after a Purchase Order agreement has been completed and returned to the author, Dr. Merrie Koester.

TEACHING/LEARNING OBJECTIVES:

1. To reveal the study of science/STEM as an personally relevant, empowering endeavor.

2. To inspire students to take ownership of their school work and make their best effort.

3. To inspire students to experience the natural world with all their senses through field study.

4. To afford students opportunities to see the natural world through drawing and journaling, and to reflect on the importance of protecting and preserving the natural environment.

5. To create an understanding of Eastern **coastal geology, ecology, and meteorology**— in particular, to create an awareness of the importance of early **hurricane preparation** and safe behavior before, during, and after a storm.

6. To teach the **NGSS Standards** in an integrated **STEAM** approach to teaching and learning.

PREPARATION:

(1) Collect a wide variety of **biological specimens** from which to draw and keep field study guides. It's also a great idea to teach students to draw first from printed reference material.

(2) Many discount stores carry inexpensive blank books. I really like the "Writer's Notebook" from family owned business, Bare Books. Or, you can have a bookmaking project. There are many inexpensive ways to create your own sketch books. A larger "Burrito Book" (See lesson plans for Agnes Pflumm and the Stonecreek Science Fair), made with legal sized paper is a great starter sketchbook. Don't be afraid to draw yourself! The author's book, *Science Teachers Who Draw: The Red Is Always There*, provides narratives and exemplary case studies of how drawing can be used to teach science and effect meaning making, even with struggling readers. There are other drawing resources noted at the end of this document.

(3) Many schools use this novel in the fall, which is prime hurricane season. Introduce your students to the projects which have emerged from the Kids Teaching Flood Resilience outreach to date. Please DO use these KTFR materials to create your own school *Step Up, Get Ready for Hurricanes* program.

(3) Get ready to enjoy teaching science as you may never have before!

Backstory

No Place Like Periwinkle is a story about personal transformations and decision making. It's a story about risk, hazard, and vulnerability and the ways in which we each have a responsibility to adapt and cope to lesson our risks to hazards. It's a story about the importance of personal integrity and about growth through struggle. It's a way to show that learning science through the arts can be both empowering and personally relevant, especially if you live in Hurricane Land.

LESSON 1 Learn to Read the World by SEEING it through Drawing

In the reference section at the back of the book are suggestions for preparing to teach natural science through drawing. Even if you think you cannot draw well, just dive in and

learn the practice with your students. An entire after-school club could be created by using Kerry Ruef's lessons from *The Private Eye: Looking/Thinking by Analogy*.

Lesson 2 Be Like Leo

Turn to **"Be Like Leonardo"** in the reference section. Leonardo overcame many struggles in his personal life. Challenge your students to find out what some of them were. Tell your class about Leonardo's incredible notebooks, the single and very personal record of his professional secrets and activities. Like an amazing diary (written completely backwards so that they can only be read in a mirror), they convey his observations, thoughts, and dreams of a future world. In them are designs for machines of mass production, fables, drawings of floods and earthquakes, plans for an ideal city, fortifications, weapons, flying machines, and studies of the flight of a bird (to name a few entries!). Excerpts from his notebooks are available in many publications on Leonardo. Impress on your students that **Leonardo believed that bringing in an artist's training, imagination, and insight to the pursuit of scientific knowledge was essential if one were to truly understand the world.** Little wonder that young Agnes was so inspired by reading about him!

This would be an excellent opportunity to challenge students to **plan their own inventions** in notebook entries of their own. Learn more about the highly influential work of inventors like George Carver Washington . Have conversations about the importance of being science literate if one is to take part in informed decision making in society.

Suggested Assignments: Come up with a chore / activity around the house or yard which could be made easier with one of your inventions. Draw sketches which show preliminary planning for your invention. Give your invention a name. (2) **An inventor's most important attribute is a never-ending curiosity.** Write down five questions about which you are most curious. (Examples: How can I save more money? How can I be responsible and still have fun? How far out does space go?)

LESSON 3 Ready, set, DRAW!

Remind your students of the power of drawing to help them learn about form and function of an object, be it natural or man-made. No exercise more clearly brings home the relationship of parts to the whole than drawing. You yourself should become quite comfortable with drawing. (Try not to be critical of yourself!) Check out either Betty Edwards, Clare Walker Leslie, or Cathy Johnson's books and practice both contour and gesture type drawings.

Start your own "Naturalist's Sketchbook," carefully balancing your written observations with your drawings.

After you've gained some drawing confidence (YES, you CAN draw!), bring out your **specimens.** For younger students, you may want to prepare and photocopy "sketchbook sheets" with large circles drawn in for sketches, and with lines next to them for scientific notes. Allow room for at least two large drawings on the page. One drawing might show

the animal in its natural habitat. Another might be a close-up view of the specimen. Encourage all levels of students to look closely at their specimens while drawing them, to label the names of structures if they know them, and to make written observations about the smell, texture, colors, and patterns in their specimen. For lessons on classification, include the organism's scientific name and as much background content about its behavior and habitat.

LESSON 3 From the Mountains to the Sea

DISCOVER YOUR STATE'S GEOLOGIC LANDFORM REGIONS

All students should become familiar with the geology of their own state, as well as the more common flora and fauna to be found in each region. We live in a time when human activity can severely alter the topography of an area and / or the quality of its water.

Suggested assignment: Give each student a sheet with a template of their state, whose outline is dark enough to be traced through another sheet of paper. On this template, each landform region's boundary and name should be drawn dark enough to trace. As an in-class activity, have students trace the state onto another sheet of paper. Next, have them trace the boundaries of each landform onto their maps, together with its name. Collect the state / landform templates for later use in other class sections. Here is a great resource for SC landform maps by the SC Geographic Alliance.

Students should study their maps and learn the names of the landform regions. They also need to trace other state templates for later labeling the following: **Rocks and Minerals in My State**; **Common Plants Found in each Region**; **Common Animals found in each Region**; **Major Rivers and Lakes in my State**; and **Land Use in each Region** (ex, agriculture, mining, industry, etc.) If your curriculum is departmentalized, you may want to team teach this lesson with your social studies teacher. At the very least, students should learn basic map-reading skills, with middle school students also being taught how to interpret a topographical map.

LESSONS 4,5,6,and 7.....

SCIENCE PROJECT BLUES
RELATIONSHIPS
THE GREAT BARRIER ISLAND DILEMMA
HURRICANE WATCH

The above lessons are thoroughly described in reference section at the back of the novel. If you live in the Hurricane Belt, be sure to enlist the help of a local weather personality to add another level of interaction to your unit. Since writing *No Place Like Periwinkle* (the first edition came out in 1998), the impacts of global warming and sea level rise have put those of us in Hurricane Land in considerably more jeopardy. We are now experiencing far more extreme weather events, rain bombs, and higher energy storms, all of which have contributed to life-threatening flooding situations. In response to this, I founded Kids Teaching Flood Resilience as part of my work on behalf of the University of SC Center for

Science Education. KTFR is now part of the NOAA, National Weather Service Weather Ready Nation Ambassador program. You, too, can become part of Kids Teaching Flood Resilience!

Suggested assignment for **THE GREAT BARRIER ISLAND DILEMMA lesson:** Draw a profile of a typical barrier island on large butcher paper. Then have students draw (or cut and paste) the flora and fauna found in each region of the island. Use the information in the reference section as field guides. You might even try doing a wall mural.

I especially recommend the web site on the barrier island, Folly Beach, for teaching about coastal marine geology and biology. This site was created by Steven Vettese in conjunction with the Coast Team program, a marine science education program for teachers located at the College of Charleston, in SC. The images and drawings are a great reference for creating field study guides of your own!

PERMISSION TO ACT OUT!

I've had many students e-mail me to say they really enjoyed acting out scenes from my first book, *Agnes Pflumm and the Stonecreek Science Fair*. I encourage you and your students to make *No Place Like Periwinkle* "come alive!" using the scene prompts in the reference section. You might even consider performing a class or school play. This is just one of the many ways of integrating creativity and the arts into your **STEAM** curriculum.

Your Notes and Innovations Here!