

## ***No Place Like Periwinkle*** Linking Inquiry and Life Science with Literature and the Arts

### The Author's Lesson Plans

**STANDARDS:** NGSS Science and Engineering Practices and Cross-Cutting Concepts, grades 4-8, NGSS DCI - Life Sciences and Earth Sciences

**TIME FRAME:** Will vary according to your own scheduling demands.

**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:** Your school might use *Agnes Pflumm and the Stonecreek Science Fair* at one grade level and *No Place Like Periwinkle* at the next. Where you choose to use them will depend on the reading level of your students as well as what year(s) science projects and environmental science are taught. **The *Agnes Pflumm* books are also being used in Accelerated Reading programs as well as in READING AND LITERACY CURRICULA in schools around the nation.**

#### **OBJECTIVES:**

- (1) To inspire students to experience the natural world with all their senses.
- (2) To encourage students to see and learn about **biological specimens** through drawing them, and, through doing so, become naturalists themselves.
- (3) To educate students about 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.)
- (4) To discourage the over-involvement of parents in homework projects, particularly the **science project** assignment.
- (5) 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) If funding allows, provide students with small, bound sketch books. (Many discount stores carry inexpensive blank books.) Or, you can have a bookmaking project. There are many inexpensive ways to create your own sketch books. A larger "Burrito Book" made with legal sized paper is a great starter sketchbook. Don't be afraid to draw. Check out the many helpful books in the reference section of *No Place Like Periwinkle*. 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) If you live in the Hurricane Belt, many local weather stations will have produced Hurricane Preparation Pamphlets. Inquire how you may obtain some for your classroom. Perhaps there is even a local weather expert who will come to your class to talk about hurricanes.

(3) *Read No Place Like Periwinkle* well ahead of time. In particular, study the DON'T JUST SIT THERE! section (pp. 137-154). The rest of these lesson plans will guide you through these activities.

### **INTRODUCTIONS - BACK TO THE PAST....**

Announce that you have in your possession the “prequel” to *Agnes Pflumm and the Stonecreek Science Fair!* You have several choices here. I like to summarize the “love story” between Agnes’ parents, then talk a little about Agnes’ personality. At twelve, she is already a good artist, but lacks self confidence in many areas of her life.

Her best friend is Lydia (briefly mentioned in *Agnes Pflumm and the Stonecreek Science Fair* as the one Agnes cheated out of first place in the science fair) It’s summertime, and Agnes and Lydia’s favorite game is one in which you close your eyes and try to imagine what you’ll be when you’re grown up. Begin reading here, on p. 24 and continue on to either p. 29 or 32.

**HOMEWORK (HW)** Read up on Leonardo da Vinci. When and where did he live? What was he like as a boy? List ten of his inventions / ideas / investigations. In what areas of his life’s work did science and art clearly overlap? Was he right or left handed? Why do you think he wrote all of his notes backwards so that they could only be read in a mirror?

### **LESSON 1....**

Note: You may choose to do your Leonardo activities before or after teaching basic drawing skills.

Turn to “**Be Like Leonardo**” on p. 139. 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 was the first to bring an artist’s training, imagination, and insight to the pursuit of knowledge.** 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. Recall how other famous inventors like Thomas Edison also filled the pages of their notebooks with detailed drawings and observations.

**HW:** (1) 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) Leonardo's most important attribute was his 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 2.....**

**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 or Cathy Johnson's books (see references on pp.153-154) 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 older groups, include the organism's scientific name and as much background content about its classification, behavior and habitat.

**HW:** Require all students to maintain a Naturalist's Sketchbook for at least two months, calling their attention to instruction numbers 5 and 6 on pp. 138 and 139.

## **LESSON 3.....**

**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.

**HW:** 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.

At home, 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 the book on pp. 141-150. Also, don't forget to use the references cited on pp. 153-154. 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. Also, I can't recommend enough the excellent educational materials produced by NOAA (the National Oceanographic and Atmospheric Administration). Among the best, I think, are the NOAA Research Site: <http://www.oar.noaa.gov/k12/index.html> and the new Hurricane Education Pages: <http://www.climate.noaa.gov/index.jsp?pg=/.education/hurricanes/materials.jsp>.
- Consider using # 9 under RELATIONSHIPS (p.143) as a Language Arts assignment. You'll be amazed at the number of different "life histories" your students will invent for evil Edna Broadwater.

\*\*\* For the **THE GREAT BARRIER ISLAND DILEMMA** (pp. 144-148), try this project: 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. Use the information on pp.147 - 148) as well as the field guides listed in the reference section to help you with accuracy. 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 [COASTeam program](http://oceanica.cofc.edu/An%20Educator's%20Guide%20to%20Folly%20Beach/guide/default.htm), a marine science education program for teachers located at the College of Charleston, in SC. Go to <http://oceanica.cofc.edu/An%20Educator's%20Guide%20to%20Folly%20Beach/guide/default.htm>  
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*. So, here, on pp. 151-152, I encourage you and your students to make *No Place Like Periwinkle* "come alive!" 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!***