

New Environmentally-Based Educational Activities Available On-Line at ESRL

The POET Program – Protect Our Environmental Treasures – is a series of 15 environmentally-based student activities designed specifically for middle and high school teachers to use in their classes. Using NOAA data and research, including resources from organizations linked in partnership with NOAA, the unique, interdisciplinary POET activities:

1. emphasize age-appropriate, academically challenging lessons that integrate typical school subjects;
2. show how school subjects relate to "real-life" practical application; and
3. provide an opportunity for students to develop and practice using "brain tools", thinking and reasoning skills that students need to be successful in school and later as adults.

Typical “brain tools” that students use in the POET activities include the following abilities:

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| - compare and contrast; | - interpret data; |
| - cause and effect; | - graph; |
| - observe and infer; | - draw conclusions; |
| - calculate; | - make judgments; |
| - identify; | - construct models. |

Background: The POET Program Educational Activities are the “brainchild” of Beverly Meier, a long-time middle school science teacher in Colorado’s Boulder Valley School District. Started as part of NOAA’s 200th Anniversary celebration, the POET activities are an outgrowth of ESRL educational efforts including “Student Activities in Meteorology I and II” and “Wooly Magma”. Scientific content and editing was provided and reviewed by a wide variety of ESRL’s division and director’s office scientists. The design, layout, graphics, additional editing, and preparing the POET activities for the web were accomplished by ESRL’s Global Systems Division.

The POET activities are divided into sections:

1. a problem question (inquiry) to be answered;
2. a category that names the interdisciplinary subjects of study that are emphasized in the lesson;
3. a connection to the real world that identifies how the lesson is used in real-life situations;
4. an opportunity to identify prior knowledge, a technique that helps to set the stage for the lesson – after the lesson, they add what they have learned;
5. background information to encourage reading and discussion materials needed for the activity;
6. data based on NOAA research;

7. graphing for applying math skills;
8. analysis using questions that lead students toward a more complete understanding of each activity; and
9. a conclusion that helps students demonstrate new knowledge by integrating the various parts of the lesson in a short essay.

Significance: POET topics were chosen so that students are exposed to trend-setting scientific research at ESRL and other organizations as they practice the processes of science – learning basic concepts and principles, posing a question to be investigated, collecting data, graphing, analyzing, and predicting – all in an interdisciplinary setting. For teachers, POET was designed to be self-contained with little extra effort beyond gathering materials. The lessons are versatile enough to adapt to different teaching styles and can be used in either small-group, large-group, or individual instruction. Although created for middle and high school, students in upper elementary school could benefit by doing parts of each lesson. The questions that accompany the activities are graduated in difficulty. By design, easier questions are at the beginning followed by more difficult questions toward the end of the question section. The POET activities conform to the Essential Principles of Climate Sciences, based on the National Science Education Content Standards.

Contact information

Name: Annie Reiser

Tel: 303-497-6634

Ann.M.Reiser@noaa.gov