



## *Global Climate Change Curriculum*

With more than a decade of national and international experience working with over 2,000 teachers, The Keystone Center is uniquely qualified in the arena of curriculum development. The Keystone Center partners with corporations, foundations and educators each summer, and each year, up to 250 middle-level educators attend the *Key Issues Institutes*, programs in which teachers develop the skills and confidence to investigate current environmental and sustainability issues in a non-biased, scientifically grounded process with their students. The *Institutes* emphasize the importance of utilizing science as inquiry combined with a multi-disciplinary approach to teaching.

The *Key Issues* staff along with the Department of Energy, Office of Fossil Energy/National Energy Technology Laboratory (NETL) has developed a professional development institute to teach educators how to investigate the issue of Global Climate Change with their students. The first *Global Climate Change Institute*, which was held in October 2004 in Colorado; a second session is planned for Fall 2005. The curriculum is also being introduced at National Science Teacher Association (NSTA) Conferences this year.

The curriculum delivered is intended to be an easy to use progression of hands-on activities, technologies and labs for middle level teachers. While following a scientific process, teachers and students will discover the basics of climate change, investigate global and local influences, understand the role of sustainability, explore short term and long term remediation techniques, and share findings to comprehend regional and national implications.

Through the curriculum, teachers are able to lead their students through the following progression:

1. Understand global climate change and the stakeholders involved
  - Define basic terms
  - Use a decision grid to analyze a variety of perspectives
2. Investigate current local and global influences
  - Use data collection technology through probes
  - Apply scientific concepts, such as parts per million, serial dilution, etc.
  - Understand social and economic implications
  - Analyze and share data
3. Forecast action taking options
  - Investigate current efforts, including carbon sequestration
  - Brainstorm effective solutions for the future
4. Utilize a decision grid to identify the most sustainable action
  - Understand sustainability and its components
  - Identify economic, environmental and social equity criteria to use in the decision grid
  - Analyze current efforts and future solutions
5. Develop individual action taking projects
  - Articulate the economic, environmental and social benefits of their action
  - Understand sustainability applications
  - Implement the action of choice

### *Global Climate Change Institute Curriculum Components*

- ≈ **Non-biased:** The need for non-biased, scientifically grounded curriculum is a top priority. Students can be indoctrinated by teacher opinions and media coverage, and it is important that teachers are given the skills to guide their students through an unbiased decision making process, which includes sustainability components.
- ≈ **Scientific Process:** The curriculum will follow the *Key Issues Framework*, a scientific process that includes historical information, hard science data collection, as well as social perspectives, indicators, goal development, and action components.

- ≈ **Standards-based:** With the emphasis on standardized test scores, there is intense pressure on teachers and students to perform well internationally, nationally and locally. The curriculum will be aligned to National Education Standards in a variety of disciplines (language arts, math, science, and social studies).
- ≈ **Materials:** The Keystone Center is currently working with Lab-Aids to develop a science kit that relates specifically to the Global Climate Change curriculum unit. Every participant will receive this kit, as well as CD-ROMS to support their classroom implementation.

Today's youth are tomorrow's leaders. Our future depends on having well-educated, skilled and motivated young people as active members in local and global communities. As global climate change becomes increasingly important in our communities, the concepts of the *Global Climate Change Institute* become more critical to instill in our students. Understanding this issue requires a balanced knowledge of the scientific, technical, political and social complexities of energy and environmental policies. The unparalleled components of the *Global Climate Change Institute* provide educators with the tools and techniques to help students better assess all sides of these issues, now and in the future, to make decisions based on scientific data and social considerations.

### **How You Can Become Involved**

- **Educators:** Look for the NETL/Keystone Center booth at the next National Science Teacher Association Meeting you attend and sign up to attend the climate change curriculum workshop. Consider attending the in-depth training session in Colorado next fall.
- **Industry:** Sponsors are needed to cover the teacher's expenses during the training. Please consider sponsoring a teacher from your region.

For more information, please contact: Keystone's Director of Teacher Training Brooke Carson at 970-513-5843 and [bcarson@keystone.org](mailto:bcarson@keystone.org); or Sarah Forbes at NETL, 304-285-4670 and [sarah.forbes@netl.doe.gov](mailto:sarah.forbes@netl.doe.gov)