TO: Science Educators

FROM: Barry Walker, Briarwood Christian School, Birmingham, Alabama

DATE: February, 2008

REGARDING: June, 2008 Science Teacher **Workshops**

Briarwood Christian High School, a respected, well-established School in Birmingham, is hosting two **Workshops** for science teachers in June, 2008. **Modeling Physical Science** and **Modeling Physics: Mechanics** are designed so a teacher can come for one, two, or three weeks of transformational professional development.

The Workshops will be taught by outstanding science teachers who use the Modeling Instruction Method in their science classes and are approved to teach the Workshops by the Modeling Instruction Program officials at Arizona State University. (See the "Workshop Information" attachment for faculty credentials.)

Briarwood Christian School is in the third year of converting the science instruction paradigm and pedagogy to the Modeling Method. From our grade level classes through the Advanced Honors classes we are witnessing **higher student interest**, **enhanced performance**, **and broad student enjoyment** in science! One BCS science teacher said we should be calling our science program "Thinking First."

BCS Science Teams have moved from placing 5th to 10th at science contests to "top four" recognition in State and Regional competitions. We do not have an explanation for the striking success other than our students receive Modeling Instruction and are skilled at proportional and analogical reasoning. ACT Science reasoning scores are also higher than previous years.

Students today do not have the same experiences with the physical world as previous generations. Modeling combines "hands on" of a physical phenomenon using paradigm labs and evokes thinking by introducing six representations (data tables, graphical, diagramical, mathematical, verbal and written) of the phenomenon. After student's misconceptions are corrected and proper mental models are developed students deploy the models in related exercises and labs.

The Modeling Instruction Method is <u>not</u> a new fad but it is an impressively successful teaching methodology. It was developed at Arizona State University in the early 1990s. The ASU Modeling Website, (http://modeling.asu.edu/), states:

"For 17 years, the Modeling Instruction Program has been helping teachers attain knowledge and skills needed to benefit their students. Modeling Instruction is the only high school science program recognized as Exemplary by the U.S. Department of Education."

The Program was developed under a 15 year NSF grant (1989-2005) and all materials are public domain.

Two very informative papers on the Modeling Instruction Method are:

"The Modeling Method: A Synopsis" http://modeling.asu.edu/modeling/synopsis.html

"Detailed Description of the Modeling Cycle" http://modeling.asu.edu/modeling/mod_cycle.html

Please contact one of our teachers if you have any questions about content or about Modeling Science in classrooms. Any of these outstanding instructional leaders would be happy to talk with you.

Dr. Tim Burgess, McGill-Toolen High School, burgest@mcgill.pvt.k12.al.us

Mrs. Martina Norton, Vestavia Hills High School, nortonam@vestavia.k12.al.us

Mr. Victor Nichols, Briarwood Christian School, vnichols@briarwood.org

Mr. Barry Walker, Briarwood Christian School, bwalker@briarwood.org

Please **FORWARD** this information to other junior high school and high school science teachers and administrators. Thank you.

Please consider this quote: "Over the last 40 years we have learned more about the human brain than in the previous 400 years. Educators and neuroscientists have been trying to put this knowledge to work by transforming the information of basic and clinical neurosciences into practical insights for the classroom." Dr. Bruce D. Perry, M.D. Ph.D.

Teaching science to Junior High and High School students utilizing the Modeling methodology captures the essence of sound brain research conclusions about learning. Engaged learning and student thinking define and distinguish our classrooms today! Modeling instruction produces strategic instructional changes and significant student success!