

**33. Systems Thinking/System Dynamics - The Fourth R?** - Mary Jo Davis, Becky Hill, Jan Mons, Clelia Scott, and Eugenia Taylor, Waters Grant Project, Glynn County Schools, Brunswick, GA

Reading, writing, and arithmetic are usually taught as individual fields of study. Some classrooms may or may not use a more integrated approach, allowing students to see how naturally these three areas blend in the everyday world of living. The GIST Project, in conjunction with our elementary (PreK-5) schools, introduced ST/SD techniques as one way to integrate the basic fundamental skills necessary for learning into all areas of study. Through a series of lessons the teachers and GIST mentors introduced the ST/SD tools and concepts, explained the connections between the tools/concepts, and tried to create a classroom atmosphere conducive to a ST/SD lesson.

This presentation will share the introductory lessons and activities teachers have conducted to incorporate ST/SD tools and concepts into their own curriculum. The complete lesson plans will be available on the CLE by fall of 2000.

The activities for Pre-K, Kindergarten, and First Grade include:

- Moving Sand - Students scoop and pour sand out of a clear container (STOCK) and measure the amount that accumulates after the addition of each scoopful. Based on the student observations and measurements, they then create a BOTG. The students, along with the support of the teacher and/or mentor, make predictions about the pattern of the data in the graph.
- Racing Cars - This is an activity that allows students to see the connection between the rate of change and the slope of a line graphing this data.

Activities for Second Grade and beyond include:

- Temperature Change - This activity introduces students to a BOTG along with the concept of “why asking questions is important.”
- “Stone Soup” - This story is an excellent way to demonstrate many of SD/ST tools and concepts.

We have also incorporated many of the materials/activities found on the Creative Learning Exchange Website. These include: Picture Kit, The IN OUT Game, and Rainbow Fish.

Context and History: The GIST project has experimented with ways to enable teachers to feel more comfortable with the incorporation of ST/SD tools and concepts into their classrooms. As with any new technique, the teachers must have a certain level of comfort before they begin to use it, understand the desired results, and believe it is beneficial to them and students. The GIST Project has tried a variety of methods in the last five years. Through sharing with other teachers around the country via conferences, summer workshops at Trinity College, and the Waters Foundation Network, the GIST mentors have monitored and adjusted their work to incorporate this shared learning. These lessons, accompanied by this style of mentor support, have generated a more intense interest in systemic thinking than was evidenced in the past.