Chemistry Standards

The Science Georgia Standards of Excellence are designed to provide foundational knowledge and skills for all students to develop proficiency in science. The Project 2061's *Benchmarks for Science Literacy* and the follow up work, *A Framework for K-12 Science Education* were used as the core of the standards to determine appropriate content and process skills for students. The Science Georgia Standards of Excellence focus on a limited number of core disciplinary ideas and crosscutting concepts which build from Kindergarten to high school. The standards are written with the core knowledge to be mastered integrated with the science and engineering practices needed to engage in scientific inquiry and engineering design. Crosscutting concepts are used to make connections across different science disciplines.

The Science Georgia Standards of Excellence drive instruction. Hands-on, student-centered, and inquiry-based approaches should be the emphasis of instruction. The standards are a required minimum set of expectations that show proficiency in science. However, instruction can extend beyond these minimum expectations to meet student needs. At the same time, these standards set a maximum expectation on what will be assessed by the Georgia Milestones Assessment System.

Science consists of a way of thinking and investigating, as well a growing body of knowledge about the natural world. To become literate in science, students need to possess sufficient understanding of fundamental science content knowledge, the ability to engage in the science and engineering practices, and to usBT/Fwldisciplines.

d. Refine the design of a chemical system by altering the conditions that would change forward and reverse reaction rates and the amount of products at equilibrium.
(*Clarification statement:* Emphasis is on the application of LeChatelier's principle.)

SC5. Obtain, evaluate, and communicate information about the Kinetic Molecular Theory to model atomic and molecular motion in chemical and physical processes.

a. Plan and carry out an investigation to calculate the amount of heat absorbed or released by chemical or physical processes.
(*Clarification statement:* Calculation of the enthalpy, heat change, and Hess's Law are addressed in this element.)
b. Construct an explanation using a heating curve as evidence of the effects of energy and intermolecular forces on phase changes.
c. Develop and use models to quantitatively, conceptually, and graphically represent the relationships between pressure, volume, temperature, and number of moles of a gas.

SC6. Obtain, evaluate, and communicate information about the properties that describe solutions and the nature of acids and bases.

a. Develop a model to illustrate the process of dissolving in terms of solvation versus dissociation.
b. Plan and carry out an investigation to evaluate the factors that affect the rate at which a solute dissolves in a specific solvent.
c. Use mathematics and computational thinking to evaluate commercial products in terms of their concentrations q Bb..,mer and esrc-2(e)4(st t)-2((y)20)-0(amass)3( )]TJ ETQ0 0 0 rg 0 0 612 792 re W BT/F2 12 Tf1 0