**8th Grade Science Curriculum Guide**

**2010-2011**

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| This document is part of a framework that was designed to support the major concepts addressed in the 8th Grade Physical Science Curriculum of the Georgia Performance Standards through the processes of inquiry. These units are written to be stand alone units that may be taught in any sequence. The length of each unit is a suggestion. Unit length should be based on student performance. | | | | |
| **Q1**  **Structure of Matter (30%)** | | **Q2**  **Force and Motion (30%)** | **Q3**  **Energy and Its**  **Transformations (40%)** | **Q4**  **Waves** |
| **Standard**: **S8P1**  Students will examine the scientific view of the nature of matter.  **Elements:** a, b, c, d, e, f, g  **Standard: S8P2**  Students will be familiar with the forms and transformations of energy  **Elements:** a, b, c, d  **Standard: S8P3**  Students will investigate relationships between force, mass, and the motion of objects.  **Elements:** a, b, c | **Standard: S8P5**  Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature.  **Elements:** a, b, c | **Standard**: **S8P1**  Students will examine the scientific view of the nature of matter.  **Elements:** a, b, c, d, e, f, g  **Standard: S8P2**  Students will be familiar with the forms and transformations of energy  **Elements:** a, b, c, d  **Standard: S8P3**  Students will investigate relationships between force, mass, and the motion of objects.  **Elements:** a, b, c | **Standard: S8P2**  Students will be familiar with the forms and transformations of energy  **Elements:** a, b, c, d  **Standard: S8P5**  Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature.  **Elements:** a, b, c | **Standard: S8P2**  Students will be familiar with the forms and transformations of energy  **Elements:** a, b, c, d  **Standard: S8P3**  Students will investigate relationships between force, mass, and the motion of objects.  **Elements:** a, b, c |
| Chapters 2, 3, 4, 11, 12, 14 | | 5, 6, 8 | 9, 10, 17, 18 | 20 – 23 |
| **Focus:**  Pure substances  (elements and compounds)  Mixtures  Law of Conservation of Energy  Relationship between:   * Potential and kinetic * Velocity and acceleration   Effects of balanced and unbalanced  forces on an object  Effect of simple machines on work  Gravitational forces | | **Focus:**  Atoms and molecules  Pure substances (elements and compounds)  Mixtures  Motions of particles on solids, liquids, gases, and plasmas  Distinguish between   * Physical and chemical properties * Physical and chemical changes   Conservation of Matter  Conservation of Energy  Heat Flow   * Conduction * Radiation * Convection | **Focus:**  Conservation of Energy  Relationship between potential and kinetic energy  Compare and contrast forms of energy and their characteristics   * Heat * Light * Electric * Magnetic * Mechanical Motion * Sound   Series and parallel circuits  Electric currents  Magnets  Electric and magnetic forces | **Focus:**  Conservation of Energy  Compare and contrast forms of energy and their characteristics   * Heat * Light * Electric * Magnetic * Mechanical Motion * Sound   Series and parallel circuits  Characteristics of electromagnetic and mechanical waves  Behavior of light   * Reflection * Refraction * Diffraction * Absorption   Colors and human eyes  Sound  Amplitude and pitch |
| **The following standards will be taught throughout the school year:**  Standard: S8CS1 *Students will explore the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.*  Elements: a, b  Standard: S8CS2 *Students will use standard safety practices for all classroom, laboratory, and field investigations.*  Elements: a, b, c  Standard S8CS3 *Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.*  Elements: a, b, c, d, e, f  Standard: S8CS4 *Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities utilizing safe laboratory procedures.*  Elements: a, b, c  Standard: S8CS5 *Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.*  Elements: a, b  Standard: S8CS6 *Students will communicate scientific ideas and activities clearly.*  Elements: a, b, c  Standard: S8CS7 *Students will question scientific claims and arguments effectively.*  Elements: a, b, c, d  Standard: S8CS8 *Students will be familiar with the characteristics of scientific knowledge and how it is achieved.*  Elements: a, b, c  Standard: S8CS9 *Students will understand the features of the process of scientific inquiry.*  Elements: a, b, c, d, e, f, g  **Reading Across the Curriculum**  Standard: S8CS10 *Students will enhance reading in all curriculum areas.*  Elements: a, b, c, d | | | | |