**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)MixturesLaw of Conservation of EnergyRelationship between:* Potential and kinetic
* Velocity and acceleration

Effects of balanced and unbalanced forces on an objectEffect of simple machines on workGravitational forces           |  **Focus:**Atoms and moleculesPure substances (elements and compounds)MixturesMotions of particles on solids, liquids, gases, and plasmasDistinguish between* Physical and chemical properties
* Physical and chemical changes

Conservation of MatterConservation of EnergyHeat Flow* Conduction
* Radiation
* Convection

  | **Focus:**Conservation of EnergyRelationship between potential and kinetic energyCompare and contrast forms of energy and their characteristics* Heat
* Light
* Electric
* Magnetic
* Mechanical Motion
* Sound

Series and parallel circuitsElectric currentsMagnetsElectric and magnetic forces | **Focus:**Conservation of EnergyCompare and contrast forms of energy and their characteristics* Heat
* Light
* Electric
* Magnetic
* Mechanical Motion
* Sound

Series and parallel circuitsCharacteristics of electromagnetic and mechanical wavesBehavior of light* Reflection
* Refraction
* Diffraction
* Absorption

Colors and human eyesSoundAmplitude 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  |