|  |  |  |
| --- | --- | --- |
| **First Semester** (August - December) | | |
| **First Nine Weeks** | | **Second Nine Weeks** |
| **Unit Title** | ***A CONTENT STANDARD IS NOT MET UNLESS APPLICABLE CHARACTERISTICS OF SCIENCE ARE ALSO ADDRESSED AT THE SAME TIME.*** | |
| **Unit focus: Fast and Furious Forces** | **Unit focus: Chemistry of Climate** |
| **Standards/Elements** | **S8P3. Students will investigate relationship between force, mass, and the motion of objects**  a. Determine the relationship between velocity and  acceleration.  b. Demonstrate the effect of balanced and unbalanced  forces on an object in terms of gravity, inertia, and  friction.  c. Demonstrate the effect of simple machines (lever,  inclined plane, pulley, wedge, screw, and wheel and axle) on work.  **S8P5. Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature.**   1. Recognize that every object exerts gravitational force on   every other object and that the force exerted depends on how much mass the objects have and how far apart they are.  **S8P2. Students will be familiar with the forms and transformations of energy.**   1. Explain energy transformation in terms of the Law of Conservation of Energy. 2. Explain the relationship between potential and kinetic   energy.   1. Compare and contrast the different forms of energy   (heat, light, electricity, mechanical motion, sound) and  their characteristics | **S8P1. Students will examine the scientific view of the nature of matter.**   1. Distinguish between atoms and molecules. 2. *Describe the difference between pure substances (elements and*   *compounds) and mixtures.*   1. Describe the movement of particles in solids, liquids, gases, and   plasmas states.   1. Recognize that there are more than 100 elements and   some have similar properties as shown on the Periodic  Table of Elements.  **S8P1. Students will examine the scientific view of the nature of matter.**   1. *Distinguish between physical and chemical properties of matter as*   *physical (i.e., density, melting point, boiling point) or chemical (i.e.,reactivity, combustibility).*   1. *Distinguish between changes in matter as physical (i.e., physical*   *change) or chemical (development of a gas, formation of precipitate, and change in color).*  *g. Identify and demonstrate the Law of Conservation of Matter.*  **S8P5. Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature.**   1. Investigate and explain that electric currents and magnets can exert   force on each other.   1. Demonstrate the advantages and disadvantages of series and parallel   circuits and how they transfer energy. |

|  |  |
| --- | --- |
| **Second Semester** (January-May) | |
| **Third Nine Weeks** | **Fourth Nine Weeks** |

|  |  |  |
| --- | --- | --- |
| **Unit Title**  **Title** | ***Unit focus: It’s Electromagnetic and Sense the Wave*** | ***Unit focus: Space is the Place*** |
| **Standards/Elements** | **S8P5. Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature.**   1. Investigate and explain that electric currents and magnets can   exert force on each other.  **S8P4. Students will explore the wave nature of sound and electromagnetic radiation.**   1. *Identify the characteristics of electromagnetic and mechanical*   *waves.*   1. Describe how the behavior of light waves is manipulated   causing reflection, refraction diffraction, and absorption.   1. Explain how the human eye sees objects and colors in terms of   wavelengths.   1. Describe how the behavior of waves is affected by medium   (such as air, water, solids).   1. *Relate the properties of sound to everyday experiences*. | **S8P4. Students will explore the wave nature of sound and electromagnetic radiation.**   1. Diagram the parts of the wave and explain how the parts are   affected by changes in amplitude and pitch.  **S8P2. Students will be familiar with the forms and transformations of energy.**   1. *Describe how heat can be transferred through matter by the*   *collisions of atoms (conduction) or through space (radiation). In a*  *liquid or gas, currents will facilitate the transfer of heat*  *(convection).*  Complete Standards Review for Units.  *All italicized elements are targeted areas for growth. Please ensure that all required tasks are completed for these growth areas.* |