Unit E 2 Overview – Thermal Energy

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| **Main Ideas** | **Essential Questions** |
| 1. The atoms and molecules that make up matter are in constant random motion. 2. There are three ways that thermal energy is transferred: conduction, convection, and radiation. | 1. What is the kinetic theory of matter? 2. How do particles behave at the boiling and melting points? 3. What is temperature? 4. How are thermal energy and temperature related? 5. What is the difference between thermal energy and heat? 6. How do you calculate changes in thermal energy? 7. What are conduction, convection, and radiation? 8. How are insulators used to control the transfer of thermal energy? |
| **Skills** | |
| 1. **Describe** the kinetic theory of matter. 2. **Describe** how particles behave at the boiling and melting points of substances. 3. **Define** temperature. 4. **Explain** how thermal energy depends on temperature. 5. **Explain** how thermal energy and heat are related. 6. **Calculate** the change in thermal energy. 7. **Compare and contrast** conduction, convection, and radiation. 8. **Explain** how insulators are used to control the transfer of thermal energy. | |
| **STANDARDS** | |
| **PSc.3.1 Understand types of energy, conservation of energy and energy transfer.**  PSc.3.1.1 Explain thermal energy and its transfer.  PSc.3.1.3 Explain work in terms of the relationship among the applied force to an object, the resulting displacement of the object, and the energy transferred to an object. | |

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| **Key Vocabulary** | **Review Resources** |
| * kinetic theory of matter, thermal energy, temperature, heat, expansion, contraction, specific heat * conduction, convection, radiation, thermal conductor, thermal insulator   .  pp.  **p.** | 1. Key Words - Energy 2. Unit Review - Energy 3. Ppoint - Energy   4. Class Worksheets + Lab Documents.  p.  **p.** |