<table>
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| Fireworks           | **Course Introduction** (2 classes) & **Color Investigation** (5-6)  
  Atomic structure, periodic trends, valence electrons, atoms and visible light  
  PS1-1, PS1-2, PS3-1, PS3-2  
 | **Burst Investigation** (6)  
  Chemical reactions, conservation and transfer of energy and matter, balancing chemical equations  
  PS1-2, PS1-4, PS1-7, PS3-1, PS3-2, ETS1-3  
 | **Burst Height** (6-7)  
  Newton’s Laws of Motion, velocity, momentum, conservation of energy, and projectile motion  
  PS2-1, PS2-2, PS3-1, PS3-2, ETS1-3  
 | n/a |
| Disasters           | **Gravity** (5-6)  
  Forces, vectors, Newton’s Law of Gravitation, force and acceleration due to gravity  
  PS2-1, PS2-4, ETS1-2  
 | **Energy and Momentum** (6)  
  Energy and momentum within systems, kinetic and potential energy  
  PS2-2, PS2-3, PS3-1, PS3-2, ETS1-1, ETS1-2, ETS1-3  
 | **Waves** (3)  
  Properties of waves, interactions of energy and motion, stored energy and limits  
  PS3-1, PS3-2, PS3-3, PS4-1, ETS1-1, ETS1-2  
 | Oil Spills (4)  
  Intermolecular and electrostatic forces, Coulomb’s Law  
  PS1-3, PS2-6 |
| Powering the World  | **Producing Energy** (8-9)  
  Heat transfer & capacity, endothermic/ exothermic reactions, calorimetry, combustion reactions, bond energy  
  PS1-4, PS1-7, PS3-2, PS3-4  
 | **Energy Transformations** (7)  
  Isotopes, nuclear reactions, fission, fusion, magnetic & electrical fields and interactions, generators, alternative energy  
  PS1-8, PS2-5, PS3-3, PS3-5, ETS1-1  
 | **Energy Storage** (5)  
  Energy storage, moles and concentration, collision theory and reaction rates, Le Chatelier’s Principle  
  PS1-5, PS1-6  
 | n/a |
| Innovations         | **Smartphones** (3-4)  
  Cellular phones, analog vs digital transmission and storage  
  PS4-2, PS4-5, ETS1-3  
 | **Wave Properties & Interactions** (5)  
  Wave properties and interactions, sound, mechanical waves, wave technology, speakers  
  PS4-1, PS4-5, ETS1-4  
 | **Electromagnetic Radiation** (7-8)  
  Wave-Particle Duality, photoelectric effect  
  Types of EMR, reflection & refraction, effects on tissues  
  PS4-3, PS4-4  
 | N/A |
| 21st Century Technology  | Students develop a presentation that traces the evolution of the science knowledge necessary for the creation and improvement of a technological innovation. The presentation also explains how the technology has changed the way humans interact with others and/or their environment.  
  Standards Assessed Will Vary Based on Project Topic  
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*Number of ~90-minute class periods in parentheses; includes time for the Learning Cycle Summative Assessments. Ends by dates consider time needed to accommodate for Culminating Events and assessments administered by BCPS.*