**Physical Science Power and Supporting Standards 2016-2017**

A. Investigate the Law of Conservation Energy

1. Describe transfer within and between types of energy

2. Investigate the relationships among kinetic, elastic energy, gravitational energy, and total

 energy within a closed system.

3. Calculate kinetic energy and gravitational energy.

B. Investigate Kinematics and Dynamics

4. Investigate the relationships among speed, position, time, velocity, and acceleration

5. Analyze and apply Newton's three laws of motion.

C. Explore properties and changes of matter.

 6. Differentiate among solids, liquids and gases as they relate to particle arrangement, motion,

 and energy.

 7. Explore the law of conservation of mass.

8. Describe the relationships among volume, temperature, and pressure of a gas, both

 qualitatively and quantitatively.

9. Differentiate between physical and chemical properties.

10. Explain the concept of specific heat as it relates to heat transfer.

D. Investigate atomic structure and molecular interactions

11. Differentiate between elements and compounds.

12. Compare and contrast the properties and locations of subatomic particles.

13. Use the periodic table to identify the number of protons, neutrons and electrons in an atom.

14. Use the periodic table to identify and predict properties of elements based on the patterns of

 electrons in the outermost energy level of atoms.

15. Differentiate between ionic and covalent bonding and its uniqueness.

16. Balance simple chemical equations.

 17. Investigate the structure and properties of water.

 18. Examine carbon and its role in the formation of organic compounds.

E. Investigate the properties of static and current electricity.

19. Use Ohm's Law to design, build and analyze electric circuits.

20. Distinguish among electric forces, charges and fields.

21. Explore static charge in all matter.

22. Demonstrate how objects become charged.

23. Describe the electric potential as it pertains to electric fields and electric circuits.

F. Investigate the properties of wave mechanics

24. Classify waves as transverse or longitudinal.

 25. Investigate and analyze wavelength, frequency and amplitude of longitudinal and transverse

 waves.

26. Compare and contrast the five types of wave interactions: reflection, refraction, diffraction,

 interference, and scattering.

27. Describe the characteristics of the electromagnetic spectrum.