2015 Science Standards—Physics

**COURSE FOCUS (Apply the following for each content standard.)**

**PHY.1 Identify SDA Christian principles and values in correlation with science.**

PHY.1.1 Recognize God’s power as Designer, Creator, Sustainer, and Redeemer in the universe.

PHY.1.2 Acknowledge God as the Author of all scientific principles and laws regardless of man’s interpretation.

PHY.1.3 Develop stewardship and service attitudes toward health, life, and earth’s environment.

PHY.1.4 Apply Biblical principles of Christian morality, integrity, and ethical behavior to all aspects of life.

PHY.1.5 Equip students with Christian perspectives on scientific issues.

**COURSE ABILITIES (Apply the following to each content standard.)**

**PHY.2 Develop abilities in science.**

PHY.2.1 Develop critical and creative thinking skills (analysis, evaluation, divergent questioning, modeling).

PHY.2.2 Understand and utilize the scientific method of problem solving.

PHY.2.3 Utilize the principles and methodologies of cooperative learning.

**PHY.3 Be able to apply science knowledge and skills to a variety of purposes.**

PHY.3.1 Recognize scientific principles and laws as tools to solve problems in everyday life.

PHY.3.2 Apply the scientific method in analysis of controversial topics, e.g., cloning, global warming, stem cell research.

PHY.3.3 Read, write, and interpret scientific documents (lab write-ups, journals, scientific publications).

PHY.3.4 Conduct research in the content area.

PHY.3.5 Engage in various uses of technology.

**COURSE CONTENT: Mechanics, Thermodynamics, Sound and Light, Electricity and Magnetism, Nuclear Physics (Understand, explore, analyze, apply.)**

**PHY.4 Be able to understand relationships between matter and energy and how they interact.**

PHY.4.1 Recognize God as the Designer and Creator of our physical world and its governing laws.

PHY.4.2 Identify the fundamental properties and laws of mechanics.

PHY.4.3 Define the properties and laws of thermodynamics.

PHY.4.4 Demonstrate an understanding of the sound and light principles.

PHY.4.5 Describe the fundamental properties of electricity and magnetism.

PHY.4.6 Understand the basic concepts of nuclear physics.

**PHY.5 Be able to safely explore physics concepts.**

PHY.5.1 Test the properties and laws of mechanics (Newton’s laws, work, power, velocity, energy, etc.).

PHY.5.2 Explore the properties and laws of thermodynamics (laws, heat energy).

PHY.5.3 Investigate the properties of sound and light (waves, optics, etc.).

PHY.5.4 Examine the principles of electricity and magnetism (circuits, Ohm’s law, forces, charges, fields).

PHY.5.5 Research the principles of nuclear physics (quantum theory, radioactivity, dating methods, etc.).

**PHY.6 Be able to analyze physics data.**

PHY.6.1 Predict the outcome of motion and force problems using the principles of mechanics.

PHY.6.2 Correlate changes in energy to the laws of thermodynamics.

PHY.6.3 Evaluate the conditions and factors which affect sound and light.

PHY.6.4 Analyze various electrical circuits.

PHY.6.5 Interpret the results of nuclear research.

**PHY.7 Be able to apply principles of physics to health, life, and the physical environment.**

PHY.7.1 Strengthen belief in God as Designer and Creator by applying the laws of physics.

PHY.7.2 Utilize the concepts of physics to improve lifestyle choices.

PHY.7.3 Apply the study of physics to issues regarding nuclear energy.