Title ***Exploring Creation with Physical Science, 2nd Edition***
ISBN 978-1-932012-77-4 (student text) 978-1-932012-78-1 (Solutions & Tests)

Science Credits	Junior High or High School
Lab Credits[1]	1 (if using it as a high school course)
Honors Designation	No
Science Type	Physical

This laboratory-based science course offers the student a general introduction to the physical sciences. It begins with a discussion of atoms and molecules and then gives the student a firm foundation in units, including unit conversions and dimensional analysis. It then discusses the importance of concentration when it comes to the behavior of chemicals.

The student then learns about the mixture of gases we call air and how that mixture can affect global temperature. After that, the bulk properties of earth's atmosphere are discussed, along with the "hole" in the ozone layer. The student then studies chemical formulas so that he or she can understand the properties of water, including its polarity, hydrogen bonding, the fact that it expands upon freezing, and its cohesion.

The student's knowledge of the atmosphere and water are then used to help the student understand the earth's hydrosphere and its hydrologic cycle. The student then learns about the general structure of the earth (core, mantle, crust) and the properties of its lithosphere, including plate tectonics.

With an understanding of the atmosphere, hydrosphere, and lithosphere, the student is then taught about weather-related topics like insolation, the seasons, clouds, precipitation, wind, lightning, tornadoes, and hurricanes. The student learns to read a weather map and the rudiments of weather prediction. There is a long-term experiment where the student learns to correlate observations of clouds, temperature, and atmospheric pressure to the weather that he or she experiences.

The text then turns to the basics of motion, where students learn about distance, displacement, speed, velocity, and acceleration. Simple equations are used to analyze one-dimensional motion, but algebra **is not** used in the analysis. Newton's Laws of Motion are then discussed so the student learns to understand motion in a detailed way.

With Newton's Laws of Motion under his or her belt, the student can now understand force and the different kinds of forces in creation (gravitational, electromagnetic, weak, and strong). When learning about gravitational force, the student learns about the workings of the solar system. When learning about the electromagnetic force, the student learns about charges, conductors, insulators, resistance, electrical circuits, and magnetism. When learning about the weak and strong forces, the student learns about the Bohr model of the atom, radioactivity, and radiometric dating.

The text then turns to a discussion of waves. The student learns the two different kinds of waves (transverse and longitudinal) and how to characterize them. Sound is used as an example of a longitudinal wave, and the student learns about how amplitude and frequency relate to sound, the speed of sound, the Doppler Effect, ultrasonic and infrasonic sound waves, and how sound waves can be used in technology.

The student then learns about light as an example of a transverse wave. He or she learns about particle/wave duality, how amplitude and frequency relate to light, reflection, refraction, lenses, and the human eye. The student also learns about color perception.

The text ends with a discussion of astrophysics, including the nature of the sun, nuclear fusion, nuclear fission, different stars in the universe, the Hertzsprung-Russell Diagram, how distances are measured in the universe, and universal expansion.

There are 37 experiments in the course. 36 of them constitute approximately 30 hours of laboratory work. The one long-term experiment listed above can take several additional hours, depending on how long it is done and how in-depth the student studies it.

[1]To qualify as a lab credit, all of the experiments in the book must be performed, with the exception of the long-term experiment discussed above. It is an excellent experiment, but is not required for this to be a high school laboratory credit. The experiments must be fully documented in a laboratory notebook as discussed in the introduction to the text.