



# Science Benchmark Achievements

## Senior Science

### The First Day: Light and Physics

Ages 12+

#### Objectives at this age:

- Students will complete their light and physics science textbook.
- Upon completion of this textbook and the completion of calculus, students will be prepared to enroll in a college level physics course.
- Student-created textbooks should demonstrate a basic understanding of physics. However, students are encouraged to explore subjects in greater depth according to their interests and desires.

#### Student-created textbooks should include:

- A cover designed and created by the student
- An introduction to physics written by the student that includes the question and discussion of why and how God organized and created things using light and physics
- Definitions, illustrations, and descriptions of physics terms and concepts listed in the Elementary Science Benchmark Achievements for Physics
- A combination of reports, essays, illustrations, and research papers to demonstrate student's knowledge of the following nine divisions of light and physics. (At least 3 written projects for each division)
  - Light (Light waves and energy, law of reflection and refraction)
  - Sound (sound waves, speed, vibration, pitch)
  - Newton's Laws (Inertia, force, speed, direction, equal and opposite reactions)
  - Kinetic and potential energy
  - Chemical energy
  - Thermal energy
  - Electrical energy
  - Magnetism and electromagnets
  - Famous scientists (Albert Einstein, Isaac Newton, Galileo Galilei, Lord Kelvin, Michael Faraday, Nicolaus Copernicus)

- Conclusion written by the student that answers the question of why and how God created things using light and physics. Students may consider searching the scriptures for the following terms to assist them in their study:
  - Light, truth, intelligence, creation, earth, world, power
- Include a bibliography in the back of the book to reference the materials used in the creation of the textbook
- Optional: Table of contents and page numbers