



Science Benchmark Achievements

Senior Science

The Sixth Day: Physiology and Biology

Ages 12+

Objectives at this age:

- Students will complete their physiology and biology science textbook.
- Upon completion of the textbook, they will be prepared to enroll in a college-level physiology course.
- Student-created textbooks should demonstrate a basic understanding of physiology. 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 physiology written by the student that includes the question and discussion of why and how God created our bodies
- Definitions, illustrations, and descriptions of physiology terms and concepts listed in the Elementary Science Benchmark Achievements for Physiology
- A combination of reports, essays, illustrations, and research papers to demonstrate student's knowledge of the following divisions of physiology and biology. (At least 3 projects for each division)
 - Cell structure and anatomy (cell structure, how substances travel in and out of cells, how cells get their energy)
 - Body tissues (nervous, muscle, connective, epithelial)
 - Skeletal system (bones, marrow, ligaments, joints)
 - Muscular system (skeletal, cardiac, smooth, voluntary, involuntary, tendons)
 - The digestive and renal systems (mouth, saliva, esophagus, stomach, intestines, liver, gallbladder, pancreas, kidneys, bladder)
 - Health and nutrition (carbohydrates, proteins, fats, water, vitamins, minerals, dietary plans)
 - The respiratory system (nasal and sinus cavity, trachea, lungs, bronchi, bronchioles, alveoli)
 - The circulatory system (heart, blood, arteries, veins, capillaries)

- The nervous and endocrine system (central and periphery, brain, brain stem, spinal cord, senses, endocrine glands, hormones)
 - The integumentary system (hair, skin, melanin, carotene, sweat glands, body temperature control)
 - The lymphatic and immune system (spleen, thymus, lymph, lymph nodes, pathogens, infections, immunity, immunizations)
 - Reproductive system; Growth and development (genetics, DNA, cell division, evolution)
 - Famous scientists (Aristotle, Hippocrates, Galen, Andreas Vesalius, Robert Hooke, Louis Pasteur, Gregor Mendel)
- Conclusion written by the student that answers the question of why and how God created our bodies. Students may consider searching the scriptures for the following terms to assist them in their study:
 - Body, spirit, heart, members, blood, mind, strength, breath, life, soul, breast, neck, shoulders, back, loins, feet, arm, bowels, marrow, bones, sinews, voice, smell, eye, tongue, fasting, deaf, dumb, blind
- 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