Department of Teaching & Learning
Parent/Student Course Information

Advanced Life Science
(SC 4118)
One year
Grade 7

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

COURSE DESCRIPTION
The Advanced Science 7 course is a rigorous life science program that encourages students to address real-world science issues. The instructional program incorporates technology, community resources, laboratory experimentation and field-based activities designed to foster critical thinking and problem-solving skills. A major goal of this course is to encourage student-directed research. Each student will conduct an approved research project. Students will take the Standards of Learning (SOL) test for Grade 8 Science. Specific dates for the spring SOL test will be announced by the school. The course is recommended for highly motivated students with exceptional work and study habits, a high interest in science and advanced math, reading, and writing skills.

COURSE GOALS
• Develop an understanding of concepts and principles in the life sciences
• Develop problem-solving and decision-making skills through experimentation, research and discussion
• Develop an awareness of the interdisciplinary nature of science and its relevance to society
• Develop basic communication and technology skills
• Explore the application of scientific principles in careers and in other areas of interest
• Complete selected advanced activities and labs
• Provide reading and study skills

PREREQUISITE
Advanced Science 6 or a teacher recommendation for advanced science and successful completion of the electronic Physical Science Modules, which are monitored by instructional staff.

OPTIONS FOR NEXT COURSE
Earth Science

REQUIRED TEXTBOOK

MINIMUM REQUIREMENTS
• Demonstrate knowledge and understanding of all core objectives through laboratory investigations, issue investigations, projects, oral and/or written tests, quizzes and reports
• Participate in the laboratory experiences, adhering to all safety procedures
• Prepare written reports for laboratory activities
• Conduct an independent science investigation
• Investigate career opportunities and areas of interest in the life sciences
• Demonstrate an understanding of the role of technology in science

The Instructional Objectives that Comprise the Grade 7 Advanced Science Course are Summarized as Follows from the Prescribed Curriculum:

• Demonstrate an understanding of scientific reasoning, logic and the nature of science by planning and conducting investigations. \( \text{(SOL LS.1)} \)
• Identify, describe and apply the basic steps of the scientific method with focus on experimental design. \( \text{(SOL LS.1, 6.1, 6.2)} \)
• Work independently and as a member of small and large groups within the classroom, in the laboratory and during field experiences. \( \text{(SOL LS.1, 6.1, 6.2)} \)
• Data are organized and communicated through graphical representation (graphs, charts and diagrams). \( \text{(SOL LS.1, 6.1)} \)
• Demonstrate safe and appropriate use of tools and scientific equipment for making observations about the living environment. \( \text{(SOL LS.1, 6.1)} \)
• Use the basic process skills and employ the advanced process skills as a basis for solving problems or answering questions about the environment. \( \text{(SOL LS.1, 6.1, 6.2)} \)
• Investigate the role of solar energy in driving most natural processes within the atmosphere, the hydrosphere and on the Earth’s surface. \( \text{(SOL 6.3)} \)
• Investigate the properties of air and the structure and dynamics of the Earth’s atmosphere. \( \text{(SOL 6.6)} \)
• Investigate and understand that the basic needs of an organism must be met in order to carry out the life processes. \( \text{(SOL LS.4, LS.14, 6.9)} \)
• Explain why cells are important to living things by investigating the basic units of structure and their function in all organisms. \( \text{(SOL LS.2, LS.3)} \)
• Explain the structural and functional organization of living things using micro-visual and visual equipment to examine cells, tissues, organs and systems. \( \text{(SOL LS.2, LS.3)} \)
• Identify the life needs and functions of living cells. \( \text{(SOL LS.2, LS.3, LS.4, LS.6, 6.8)} \)
• Explain why cells are important to living things by investigating the basic units of structure and their function in all organisms. \( \text{(SOL LS.2)} \)
• Explain the effects of heredity and environment upon organisms. \( \text{(SOL LS.13)} \)
• Investigate evidence showing that organisms change over time. \( \text{(SOL LS.14)} \)
• Demonstrate the basis for standard classification schemes by grouping living things according to their characteristics and by designing and using a dichotomous (two factor) key. \( \text{(SOL LS.5)} \)
• Compare and contrast biomes by examining relationships between abiotic and biotic factors. \( \text{(SOL LS.10)} \)
• Investigate the daily, seasonal and long-term changes that occur in ecosystems, communities, populations and organisms. \( \text{(SOL LS.11)} \)
• Illustrate the flow of energy and matter among organisms in food chains, webs and pyramids. \( \text{(SOL LS.7)} \)
• Interpret relationships among organisms in a biological community using field and laboratory activities. \( \text{(SOL LS.8)} \)
• Compare relationships that exist among members of a population in a biological community. \( \text{(SOL LS.9)} \)
• Analyze the effect of human activity on organisms in the environment. \( \text{(SOL LS.12)} \)
• Describe conservation as a necessary practice in the attempts of humans to protect and wisely use the living resources of the earth. \( \text{(SOL LS.12, 6.9)} \)
• Investigate the natural processes and human interactions that affect watershed systems. \( \text{(SOL 6.7)} \)
Notice of Non-Discrimination Policy

Virginia Beach City Public Schools does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation/gender identity, pregnancy, childbirth or related medical condition, disability, marital status, age, genetic information or veteran status in its programs and activities and provides equal access to the Boy Scouts and other designated youth groups. School Board policies and regulations (including, but not limited to, Policies 2-33, 4-4, 4-6, 4-43, 5-7, 5-19, 5-20, 5-44, 6-7, 7-48, 7-49, 7-57 and Regulations 4-4.1, 4-4.2, 4-6.1, 4-43.1, 5-44.1, 7-11.1, 7-17.1 and 7-57.1) provide equal access to courses, programs, counseling services, physical education and athletic, vocational education, instructional materials and extracurricular activities.

To seek resolution of grievances resulting from alleged discrimination or to report violations of these policies, please contact the Title VI/Title IX Coordinator/Director of Student Leadership at (757) 263-2020, 1413 Laskin Road, Virginia Beach, Virginia, 23451 (for student complaints) or the Section 504/ADA Coordinator/Chief Human Resources Officer at (757) 263-1133, 2512 George Mason Drive, Municipal Center, Building 6, Virginia Beach, Virginia, 23456 (for employees or other citizens). Concerns about the application of Section 504 of the Rehabilitation Act should be addressed to the Section 504 Coordinator/Executive Director of Student Support Services at (757) 263-1980, 2512 George Mason Drive, Virginia Beach, Virginia, 23456 or the Section 504 Coordinator at the student's school. For students who are eligible or suspected of being eligible for special education or related services under IDEA, please contact the Office of Programs for Exceptional Children at (757) 263-2400, Laskin Road Annex, 1413 Laskin Road, Virginia Beach, Virginia, 23451.

Alternative formats of this publication which may include taped, Braille, or large print materials are available upon request for individuals with disabilities. Call or write The Department of Teaching and Learning, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038. Telephone 263-1070 (voice); fax 263-1424; 263-1240 (TDD) or email her at Amanda.Malbon@VBSchools.com

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