



***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**

Glencoe Science: *Life Science* (2008)

Glencoe Science: *15 Book Series, The Air Around You* (2008)

**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. **(SOL LS.1)**
- Identify, describe and apply the basic steps of the scientific method with focus on experimental design. **(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. **(SOL LS.1, 6.1, 6.2)**
- Data are organized and communicated through graphical representation (graphs, charts and diagrams). **(SOL LS.1, 6.1)**
- Demonstrate safe and appropriate use of tools and scientific equipment for making observations about the living environment. **(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. **(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. **(SOL 6.3)**
- Investigate the properties of air and the structure and dynamics of the Earth's atmosphere. **(SOL 6.6)**
- Investigate and understand that the basic needs of an organism must be met in order to carry out the life processes. **(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. **(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. **(SOL LS.2, LS.3)**
- Identify the life needs and functions of living cells. **(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. **(SOL LS.2)**
- Explain the effects of heredity and environment upon organisms. **(SOL LS.13)**
- Investigate evidence showing that organisms change over time. **(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. **(SOL LS.5)**
- Compare and contrast biomes by examining relationships between abiotic and biotic factors. **(SOL LS.10)**
- Investigate the daily, seasonal and long-term changes that occur in ecosystems, communities, populations and organisms. **(SOL LS.11)**
- Illustrate the flow of energy and matter among organisms in food chains, webs and pyramids. **(SOL LS.7)**
- Interpret relationships among organisms in a biological community using field and laboratory activities. **(SOL LS.8)**
- Compare relationships that exist among members of a population in a biological community. **(SOL LS.9)**
- Analyze the effect of human activity on organisms in the environment. **(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. **(SOL LS.12, 6.9)**
- Investigate the natural processes and human interactions that affect watershed systems. **(SOL 6.7)**

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For further information please call (757) 263-1070.

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CHARTING THE COURSE

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