



A Guide for Parents and Families About What Your 12th Grader Should Be Learning in School This Year

It's no longer a secret...

This guide shares important information about the South Carolina Curriculum Standards and appropriate courses for your **12th grader**. The standards or course outlines state requirements for your child's learning program and what students across the state should be able to do in certain subjects.

A good educational system provides many tools that help children learn. Curriculum standards and course descriptions, standards and/or outlines are useful for making sure:

- teachers know what is to be taught;
- children know what is to be learned; and
- parents and the public can determine how well course content and concepts are being learned.

The following pages provide information about the South Carolina Curriculum Standards and appropriate **12th grade** courses for mathematics, science, English language arts, and social studies. The information can help you become familiar with what your child is learning at school and may include sample assessment questions, activities to reinforce and support your child's learning, selected book titles for additional reading, and Web site addresses for extended learning. Because sites change, please preview before students begin work. Information about end-of-course examinations will be referenced in the specific subject area designations.

The complete South Carolina Curriculum Standards for each subject area can be found at www.sctlc.com or at www.myschools.com.



South Carolina Curriculum Standards.

Here are seven key reasons parents should be in the **know** about the curriculum standards and course offerings:

1. Standards set clear, high expectations for student achievement. Standards and course outlines tell what students need to do in order to progress through school on grade level.
2. Standards and course outlines guide efforts to measure student achievement. Results of tests (PACT and end-of-course examinations) on grade-level curriculum and course standards show if students have learned and teachers have taught for mastery.
3. Standards promote educational equity for all. Instruction in every school in the state will be based on the same curriculum standards.
4. Standards help parents determine if children in South Carolina are being taught the same subject content as children across the nation. South Carolina Curriculum Standards have been matched to and compared with national standards as well as standards of other states to make sure that they are challenging.
5. Standards inform parents about the academic expectations of their child. Parents no longer have to guess the type of help their child needs to do better in school.
6. Standards enable parents to participate more actively in parent/teacher conferences. Knowledge of the curriculum and course standards helps parents understand more about what their child is learning and what they can do at each grade level. Parents are able to have conversations with teachers about student progress in specific areas and understand more completely the progress of their child.
7. Standards and course outlines show parents how the expectations progress throughout the high school education. Parents are able to see how their child's knowledge is growing from one year to the next.

MATHEMATICS

The mathematics standards for grades nine through twelve contained in the South Carolina Mathematics Curriculum Standards 2000 provide the essential content that students are expected to learn during their entire high school mathematics career. Since mathematics is taught in specific mathematics courses rather than as an integrated system in most high schools, standards for courses are incorporated into course outlines in the document *Outlines of High School Mathematics Courses* found on the State Department of Education web site www.myscschools.com.

Students in **grade twelve** are generally enrolled in **Mathematics for the Technologies 4, Precalculus, or Probability, Statistics and Data Analysis**. Standards for these and other courses are found in content outline form in the *Outlines of High School Mathematics Courses*.

Other courses may be available as well for students in schools on a semester block schedule. Content topics contained in Mathematics for the Technologies 4, Precalculus, and Probability, Statistics and Data Analysis are given below.

Mathematics for the Technologies 4

Mathematics for the Technologies 4 focuses on the development of the student's understanding of and ability to apply mathematics to solve real-world problems dealing with probability, statistics and data analysis. The course includes:

- foundations of data analysis;
- univariate data displays;
- applications of measures of central tendency and variation;
- basic probability concepts and applications;
- probability distributions;
- bivariate data and scatter plots;
- project design, display, and report; and
- optional topics such as hypothesis testing.

In Mathematics for the Technologies 4 students are expected to use scientific calculators, graphing calculators and computer software throughout the course. Involving occupational instructors and local businesses is recommended.

Precalculus

Precalculus focuses on the student's ability to understand and apply the study of functions and advanced mathematics concepts to solve problems. The course includes:

- characteristics, representations, and operations with functions;
- polynomial and rational functions;
- exponential and logarithmic functions;
- trigonometric functions;
- conic sections, parametric representations, and polar representations; and,
- sequences and series.

Students are expected to use technology, including graphing calculators, computers, and data gathering equipment throughout the course. Graphing calculators should be an integral part of all instruction.

Probability, Statistics and Data Analysis

Probability, Statistics and Data Analysis is a course in which students learn the fundamental principles of probability and statistics and apply these principles to data analysis through projects, investigations and case studies. The course includes:

- foundations of data analysis;
- univariate data displays;
- bivariate data and scatter plots;
- basic probability concepts and applications;
- probability distributions;
- statistical inference;
- hypothesis testing; and
- project design, display, and report.

Students are expected to use technology throughout the course, particularly interactive, dynamic software.

Sample Assessment Questions

Sample questions for Mathematics for the Technologies 4, Precalculus, and Probability, Statistics, and Data Analysis are not available at this time.

Activities:

- When carelessly used, statistics can be misleading. Find some historical examples of the misuse of statistics. Find examples of the misuse of statistics in current magazine, newspaper, and television promotions and advertisements.
- Felipe deposits \$2,000 into a retirement account and leaves it to accumulate for 30 years. Find the accumulated amount if the interest rate is (a) a true annual rate of 7.5 percent, (b) 7.5 percent compounded quarterly, (c) 7.5 percent compounded monthly, (d) 7.5 percent compounded daily, and (e) 7.5 percent compounded continuously.
- If 40 percent of the population has type O blood, and two people walk into a blood donor station at the same time, what is the probability that (a) both have type O blood, (b) neither has type O blood and (c) one has type O blood and the other does not.

Books:

- Grinstein, Louise S. and Sally I. Lipsey, editors. *Encyclopedia of Mathematics Education*.
- Hershey, Robert L. *All the Math You Need to Get Rich: Thinking with Numbers for Financial Success*.
- Hopfensperger, Patrick, Henry Kranendonk, and Richard Scheaffer. *Probability Models*.
- Nahin, Paul J. *Dueling Idiots and Other Probability Puzzlers*.

Web Sites:

- <http://members.shaw.ca/ron.blond/TLE/index.html>
- <http://www.keypress.com>
- www.illuminations.nctm.org
- www.myscschools.com
- www.sctlc.com

ENGLISH LANGUAGE ARTS

The English language arts standards for grades nine through twelve contained in the South Carolina English Language Arts Curriculum Standards 2002 provide the essential content that students are expected to learn during their entire high school English language arts career. Students enrolled in **grade twelve** are generally enrolled in **English 4** or **Communication in the Workplace 4**. Those students who took English 4 in the eleventh grade may be enrolled in Advanced Placement English in grade twelve.

Reading

- Identify universal themes in literature from all cultures and relate these to personal experience.
- Read and analyze literature with an emphasis on British literature.
- Analyze writing for accuracy, bias, point of view, purpose, assumptions and style.
- Read a variety of print materials including instruction manuals, warranties, technical manuals, and lab reports.
- Read and analyze poetry and drama.
- Increase vocabulary through extensive reading.
- Read for extended periods of time and select a wide variety of materials to read for pleasure.
- Describe how the layout of informational texts is presented and the impact it has on the message.
- Understand the purpose of a variety of communication formats (such as poetry, drama, fiction, essays, business letters, user manuals and web sites).
- Analyze the effect of conflict on plot and characters.
- Analyze the origin and meaning of new words using knowledge of culture and mythology.
- Read several works on a particular topic, paraphrase the ideas, and synthesize them with ideas from other authors addressing the same topic.
- Compare and contrast literary themes as they are developed in a variety of genres.
- Describe how the narrator's point of view or the author's choice of narrator affects a work of fiction.

Communication

- Analyze and evaluate oral presentations.
- Listen to and interpret information, and ask questions to clarify when needed.
- Listen to discussions to understand viewpoints of others.
- Increase vocabulary through listening.
- Analyze speeches and oral presentations for accuracy, bias, point of view, assumptions, purpose and style.
- Present orally information gathered from a variety of sources.
- Develop criteria and use to evaluate speaking performance of self and others.
- Demonstrate and recognize effectiveness of formal and informal language according to the situation, purpose and audience.
- Participate and respond appropriately in conferences and interviews.
- Present and evaluate dramatic readings.
- Analyze spoken information for bias, accuracy, purpose, point of view and style.
- Plan oral presentations giving sources used and be able to answer questions about the topic.

Writing

- Write in a variety of forms including expository (explanation) and technical writing.
- Write, revise and edit personal and business correspondence to a standard acceptable in the workplace and/or higher education.
- Use writing to understand, analyze and evaluate ideas.
- Develop and use criteria for evaluating writings of self and others.
- Use characteristics of good literature as a model to refine personal writing style.
- Write for extended periods of time.

Research

- Create a documented research project.
- Gather and organize information from various sources to present it clearly to others.
- Distinguish between primary and secondary sources.
- Create a "Works Cited" list.

Activities:

- Read the same book your child is reading and discuss the book with your child.
- Take your child to a movie or play.
- Compare and contrast poetry and plays.
- Compare and contrast movies and plays to books read focusing on British Literature.
- Encourage your child to keep a journal.
- Provide opportunities for your child to prepare and deliver a brief oral presentation.
- Encourage your child to write letters or send e-mail to family and friends.
- Get your child a library card and regularly go to the library or bookstore.
- When watching television or a video, discuss the conflict in the episode.
- Discuss the point of view of a character.
- Discuss how a problem was solved.
- Encourage your child to read and write, JUST FOR FUN!

Books:

- Austin, Jane. *Emma*.
- DuMaurier, Daphne. *Rebecca*.
- Golding, William. *Lord of the Flies*.
- Shelley, Mary Wollstonecraft. *Frankenstein*.

Web Sites:

- Folger Shakespeare Library – www.folger.edu
- International Reading Association - www.reading.org
- Media Literacy Clearinghouse – <http://medialit.med.sc.edu>
- National Council of Teachers of English – www.ncte.org
- National Parent Teacher Association – www.pta.org
- Romantic Circles – www.rc.umd.edu
- South Carolina Department of Education – www.myschools.com
- Surfing the Net with Kids – www.surfnetkids.com
- The Internet Public Library – www.ipl.org
- United States Department of Education – www.ed.gov/parents

SCIENCE

The science standards for grades nine through twelve contained in the South Carolina Science Curriculum Standards 2000 provide the essential content that students are expected to learn during their entire high school science career. Since science is taught in specific science courses rather than as an integrated system in most high schools, standards for courses are incorporated into course standards documents such as High School Science Standards, Objectives, and Activities found on the State Department of Education Web site - www.myscschools.com.

Students in **grade twelve** are generally enrolled in **Physics I** or **Physics for the Technologies I and II**. The standards for both of these courses appear below. Other courses are possible such as Chemistry II, Biology II, Earth Science, Environmental Science, Astronomy, Marine Science, Anatomy and Physiology, and Advanced Placement courses in science. Students planning to go to college should check the admissions requirements for which science courses are acceptable for college admission.

Inquiry: to be taught across all science disciplines

- Form a testable hypothesis, identify and select variables and conditions to manipulate and control during an investigation.
- Design a scientific investigation based on the major concepts being studied, select and use appropriate tools and technology, and practice safety procedures used in an investigation.
- Organize and communicate data collected during a scientific investigation, identifying possible sources of error in the investigation, draw conclusions and defend the scientific thinking based on the qualitative and quantitative data collected.
- Select and use technology and mathematics during scientific investigations to enhance the precision and accuracy of data collection and communication of outcomes.
- Form and revise scientific explanations through discussion, debate, logic and experimental evidence.
- Recognize, analyze, communicate and defend explanations, models, processes and conclusions based on scientific criteria.
- Analyze, explain and defend how historical scientific knowledge, current research, technology, mathematics and logic influences the design, interpretation and evaluation of investigations.

Physics

Physics, the most fundamental of the natural sciences, is quantitative in nature and uses the language of mathematics to describe natural phenomena. This course is designed to prepare students for the demands of a two-or four-year college degree program. The following major topics are included:

- motion and forces,
- conservation of energy and momentum,
- heat and heat transfer,
- electromagnetism,
- waves,
- nuclear physics, and
- quantum physics.

Physics for the Technologies I and II

Physics for the Technologies is a physics course for high school students as an alternative to the traditional college preparatory course. The course is designed to prepare students for the demand of a two-or four-year college degree program for the workplace. The emphasis will be

on the technological aspects of physics with laboratory experiences comprising most of the coursework. The focus is on the understanding and application of physics as they relate to current industry practice. Instructors are encouraged to work with occupational instructors and local businesses and industries to incorporate career and technology applications of physics. Investigative, hands-on activities that address the high school inquiry standards are an integral part of this course. The following major topics are included:

- motion and forces,
- conservation of energy and momentum,
- heat and heat transfer,
- electromagnetism,
- waves,
- nuclear physics, and
- quantum physics.



Sample Assessment Questions

Sample questions for Physics and Physics for the Technologies I and II are not available at this time.

Activities:

- Investigate the SC Junior Academy of Science and participate with your child in workshops and activities.
- Visit museums, industrial exhibits, and electrical generating plants and discuss the physics observed in everyday life.
- Discuss current science events as they appear in the nightly news and in the newspaper.
- Visit with your child a local science fair, the Roper Mountain Science Center in Greenville and a planetarium.

Books:

- Eisenkraft, Arthur. *Active Physics*.
- Macaulay, David. *The Way Things Work: From Levers to Lasers, Cars to Computers; A Visual Guide to the World of Machines*.

Web Sites:

- Amusement Park Physics – www.learner.org/exhibits/parkphysics/
- Exploratorium – www.exploratorium.edu
- Frank Potter's Science Gems-more than 14,000 science resources sorted by category, and grade level – www.sciencegems.com
- Center for Improved Engineering and Science Education – <http://www.k12science.org/currichome.html>
- National Parent Information Network – www.npin.org
- SC MAPS – www.ces.clemson.edu/scmaps
- South Carolina Department of Education – www.myscschools.com
- South Carolina ETV's Resources for Teachers, Students and Parents – www.knowitall.org
- The Particle Adventure, The Fundamentals of Matter and Forces – www.particleadventure.org/
- The Smithsonian Institution – www.si.edu
- The Weather Channel – www.weather.com/
- What Should I Look For in the Science Program in My Child's School: A Guide for Parents – <http://www.scimathmn.org>

SOCIAL STUDIES
Economics / United States Government
Students should be able to:

Economics

- Illustrate the relationship between scarcity-limited resources and unlimited human wants-and the economic choices made by individuals, families, communities, and nations.
- Explain the concept of opportunity costs and how economic decisions are made on that basis.
- Compare the four key factors of production-land, labor, capital, and entrepreneurship-and explain how they are used.
- Explain the law of supply and demand.
- Explain the nature and role of competition in a market economy.
- Explain economic incentives that lead to the efficient use of resources.
- Explain the effect of shortages and surpluses in a market economy.
- Compare personal income distribution and functional income distribution, including how distribution of income affects public policy.
- Explain the role of entrepreneurs in a market economy.
- Explain the causes and effects of economic growth.
- Summarize types of personal economic decisions and choices that individuals make.
- Explain influences on personal economic decision-making and choices.
- Compare the significant characteristics of a market economy with those of traditional and command economies.
- Analyze the roles of and relationships among economic institutions in a market economy.
- Compare the various functions and roles of the government in the United States economy.
- Summarize major sources of government revenue.
- Compare measures of economic health.
- Explain the role of the money supply in a free-market economy.
- Explain the purposes and effects of fiscal and monetary policies.
- Explain the types of goods and services that are funded with government revenues.
- Contrast the costs and benefits of the American government's economic policies.
- Explain the basic principles of international trade.
- Summarize the outcomes of global trade.
- Compare the effects of unrestricted and restricted trade on the economic and social interests of a nation.
- Explain the basic concept of the foreign exchange market.
- Summarize global patterns of economic activity and explain the impact of developing nations on the global economy.

United States Government

- Summarize arguments for the necessity and purpose of government and politics.
- Summarize differing ideas about the purposes and functions of law.
- Compare the characteristics of a limited and an unlimited government.
- Compare the characteristics and the advantages and disadvantages of confederal, federal, and unitary systems.
- Compare the advantages and disadvantages of the ways in which power is distributed, shared, and limited to serve the purposes of constitutional government.
- Analyze alternative forms of representation and how they serve the purposes of constitutional government.
- Summarize the basic principles of American democracy.
- Explain philosophical influences on the development of American government.
- Compare fundamental values, principles, and rights that are in conflict with one another in the American political system and the ways in which such conflicts are typically resolved.
- Summarize the significant ideals of the American republic, the discrepancy between those ideals and the realities of American society, and ways that such discrepancies might be reduced through social and political action.
- Explain factors that have shaped the distinctive characteristics of American society.
- Contrast the distribution of powers and responsibilities within the federal system.
- Explain the organization and responsibilities of local and state governments.
- Summarize the function of law in the American constitutional system.
- Summarize the process through which public policy is formed in the United States.
- Summarize features of the election process in the United States.
- Summarize ways in which United States foreign policy is formulated and carried out.
- Compare the roles of international organizations in world affairs.
- Classify the rights of United States citizens as personal, political, or economic and identify the significance and source of such rights and the conflicts that can arise when these rights are limited.
- Summarize commonly held personal and civic responsibilities and their significance in maintaining a democracy.
- Explain ways in which Americans can monitor and participate in politics and government.
- Explain the process of naturalization in the United States.
- Summarize character traits that are important to the preservation and improvement of American

**Economics****Activities:**

Have your child:

- Keep a budget for his or her expenses. Discuss the choices and tradeoffs that he/she has to make in budgeting money.
- Subscribe to and read a local newspaper with you. Look for articles related to economic concepts, such as global patterns of economic activity, the health of the economy, or issues of supply and demand.
- View programs on PBS such as Wall Street Week in Review and Nightly Business Report. Discuss the principles of economics that are addressed on these shows.
- Talk to grandparents or great-grandparents or read historical accounts about life during the Great Depression. Describe the types of economic choices people had to make during this time.
- Conduct an informal survey on government's role in the economy, with your help.
- Compare prices of food at several different grocery stores and draw conclusions about why there are differences.

Books:

- Blinder, Alan. *Soft Heads, Hard Hearts*.
- Galbraith, John K. *The Great Crash of Nineteen Twenty-Nine*.
- Jevons, Marshall. *The Fatal Equilibrium*.
- Miller, Roger Le Roy, Daniel K. Benjamin and Douglas North. *The Economics of Public Issues*, 7th ed.

Web Sites:

- Bureau of the Mint - <http://www.usmint.gov/> [new link]
- Census Bureau - www.census.gov/
- SCETV - www.knowitall.org
- South Carolina Department of Education - www.myschools.com
- South Carolina Teaching, Learning and Connecting - www.sctlc.com
- U.S. Department of Commerce - www.doc.gov/
- U.S. Securities and Exchange Commission - www.sec.gov/
- World Bank - www.worldbank.org/

United States Government**Activities:**

Have your child:

- Subscribe to a local newspaper and read it with you. Focus on articles that show different values and principles that conflict in American democracy.
- Listen to the news on television with you. Discuss news stories related to U.S. foreign policy.
- Ask adult friends or relatives about their role as citizens.
- Keep a log of the activities of political parties within your local area.
- Volunteer to help a local political party or local service organization.
- Go with you when you vote in a local, state, or national election. Discuss the election process with him or her and have him/her investigate the process of registering to vote at age 18.
- Visit our state or national capital. Discuss the branches of government and their responsibilities.
- Apply to be a page for your senator in Washington.
- Write a letter to a representative or senator at the state or national level on an issue of concern to him/her.

Books:

- Alderman, Ellen and Caroline Kennedy. *In Our Defense: The Bill of Rights in Action*.
- Baker, Ross K. *House and Senate*.
- Entman, Robert M. *Democracy Without Citizens: Media and the Decay of American Politics*.
- Holder, Angela Roddey. *The Meaning of the Constitution*. 2nd ed.
- Maisel, L. Sandy, ed. *The Parties Respond: Changes in the American Political System*.

Web Sites:

- Democratic Party - www.democrats.org
- Republican Party - www.rnc.org
- SCETV - www.knowitall.org
- South Carolina Department of Education - www.myschools.com
- South Carolina Teaching, Learning and Connecting - www.sctlc.com
- U.S. Census Bureau - www.census.gov
- U.S. Department of State - www.state.gov

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