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ABSTRACT

This guide shares information about the South Carolina Curriculum Standards with parents. The standards outline state requirements for children's learning, and what students across the state should be able to do in certain subjects. The guide lists seven key reasons for parents to be aware of the new curriculum standards, and then presents a condensed version of the standards for twelfth grade in mathematics (numbers and operation, algebra, data analysis and probability), English/language arts (reading/literature, listening, speaking, writing, research), science (inquiry, life science, earth science, physical science), and social studies (understand: the impact of scarcity and choice on economic activity, the role of supply and demand in market operations, the role of government in the operation of markets, the national economy and economic policy, the costs and benefits of trade and the global economy, the origins and functions of government, the foundations of American democracy, the role of the United States' Constitution in American democracy, the relationship between the United States and other nations of the world, and the rights and responsibilities of a United States citizen today). Listed after the standards for each subject area are sample assessment questions for parents to complete with their children, selected book titles for additional reading, and Web site addresses for extended learning. (EV)

A Guide for Parents and Families about What Your 12th Grader Should Be Learning in School This Year. Don't Fail Your Children.

South Carolina Department of Education,
South Carolina Education Oversight Committee

Fall 2001

DON'T FAIL YOUR CHILDREN

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. These standards outline 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 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 the standards are being learned at each grade level.

The student standards that follow are a condensed version of the South Carolina Curriculum Standards for Mathematics, English/Language Arts, Science and Social Studies for **12th Grade**. They are provided to help you become familiar with what your child is expected to do at the end of **12th Grade** so that you can reinforce and support what your child is learning at school. Listed after the standards for each subject area are sample assessment questions for you to complete with your child, selected book titles for additional reading and website addresses for extended learning. This version does not include every standard taught in **12th Grade**. If you are interested in the complete South Carolina Curriculum Standards, check with your child's teacher.

Before moving on to the next grade, students in grades 3 to 8 will be expected to score at or above grade level on state-developed tests – Palmetto Achievement Challenge Tests (PACT) – that test student knowledge of the South Carolina Curriculum Standards.

South Carolina Curriculum Standards.
Here are seven key reasons parents should be in the **know** about the new curriculum standards:

1. Standards set clear, high expectations for student achievement. Standards tell what students need to do in order to progress through school on grade level.
2. Standards guide efforts to measure student achievement. Results of tests (PACT) on grade-level curriculum 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 to know if their child is being taught the same subject content as children across the nation. South Carolina Curriculum Standards have been matched and compared with standards of other states to make sure that they are challenging.
5. Standards help parents to know more about the academic progress of their child and provide assistance at home in areas where the children need help. Parents no longer have to guess the type of help their children need to do better in school. Standards give parents more specific information for helping their children at home.
6. Standards help parents to participate more actively in parent/teacher conferences. Knowledge of the curriculum standards helps parents understand more about what their children are 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 children.
7. Standards help parents to understand that what their children learn in school one year ties into what they will learn in the next year and in future years. Parents are able to see how their child's knowledge is growing from one year to the next.

The mathematics standards that follow are a condensed version of the South Carolina Mathematics Curriculum Standards 2000 for grades 9-12. These standards are not listed by specific courses but follow the five mathematics strands that cross all grade levels (PreK-12). The complete South Carolina Mathematics Curriculum Standards 2000, together with course standards, for grades 9-12 can be accessed through the State Department of Education website (www.myscschools.com).

Hand-held graphing calculators are required as part of instruction and assessment. Students should use a variety of representations (concrete, numerical, algorithmic, graphical), tools (matrices, data) and technology to model mathematical situations.

Numbers and Operation

Students should be able to:

- Use the commutative, associative, distributive, equality and identity properties to justify the steps in solving equations and inequalities.
- Use symbolic representation, reasoning and proof to verify statements about numbers.
- Explain how performing a specific operation affects the size of a number.
- Organize data and perform operations of addition, subtraction and scalar multiplication to solve problems using matrices.
- Explain why a solution is mathematically reasonable using supporting data.

Algebra

- Determine patterns and represent generalizations algebraically.
- Apply the laws of exponents in problem-solving situations.
- Use symbols to represent unknowns and variables.
- Find specific function values and evaluate expressions.
- Select and use an appropriate method to solve linear equations and inequalities.
- Simplify polynomial expressions and perform polynomial arithmetic.
- Analyze situations involving linear functions and formulate linear equations or inequalities to solve problems.
- Gather and record data, or use data sets, to determine functional relationships between quantities.
- Interpret solutions and determine the reasonableness of solutions to linear equations, inequalities and systems of linear equations.
- Determine whether or not given situations can be represented by linear functions.
- Relate direct variation to linear functions and solve problems involving proportional change.
- Graph and write equations of lines given characteristics such as two points, a point and a slope, or a slope and y-intercept.
- Interpret situations in terms of given graphs and create situations that fit given graphs.
- Identify and sketch the general forms of linear ($y = x$) functions.
- Determine reasonable domain and range values for a variety of situations.
- Describe independent and dependent quantities in functional relationships.
- Investigate, describe and predict the effects of vertical and horizontal translations, reflections and dilations on linear functions.
- Investigate, describe and predict the effects of changing the slope and the y-intercept in applied situations.
- Solve systems of linear equations using concrete models, graphs, tables and algebraic methods.
- Solve multi-step equations and inequalities (linear and quadratic) in problem situations.
- Translate among and use algebraic, tabular, graphical or verbal descriptions of linear functions using technology.
- Identify and sketch the general forms of quadratic ($y = x^2$) functions.
- Determine domain and range restrictions for quadratic functions given constraints of the problem.
- Analyze graphs of quadratic functions and write conclusions for problem situations.
- Investigate, describe and predict the effects of vertical and horizontal translations, reflections and dilations on quadratic functions.
- Solve quadratic equations using concrete models, tables, graphs, algebraic methods (that include factoring and the quadratic formula) and technology.
- Relate the solution(s) of quadratic equations to the root(s) of the quadratic functions.
- Describe functional relationships for given problem situations and write equations, inequalities and recursive relations to answer equations arising from the situations.
- Interpret and make predictions from explicit and recursive functional relationships.

Data Analysis and Probability

- Use unit analysis to check measurement computations.

Sample PACT Questions

PACT questions are not available for distribution at this time.

Activities: Have your child:

- Discuss budgeting and balancing a checkbook (some hand-held graphing calculators have features which easily calculate loan payments).
- Discuss advantages and disadvantages of buying on credit with special emphasis on credit card interest rates.
- Practice sample SAT problems from various internet and hardcopy resources.

Books:

- *Algebra To Go* (published by Great Source Education Group; 1-800-289-4490).
- *Geometry to Go* (published by Great Source Education Group; 1-800-289-4490).
- *Mastering the Math SAT I/PSAT* (published by Great Source Education Group; 1-800-289-4490).
- *Math on Call: A Mathematics Handbook* (published by Great Source Education Group; 1-800-289-4490).

Websites:

- www.myscschools – complete South Carolina Mathematics Curriculum Standards 2000.
- www.nctm.org – explanation of the broad 9-12 standards.
- www.illuminations.nctm.org – interactive learning opportunities for parents and students.
- www.ite.sc.edu/dickeymarks.html – bookmarked sites for many subject areas.
- www.terragon.com/tkobrien/algebra – help with algebra-related questions.

ENGLISH/LANGUAGE ARTS

Students will be able to:

Reading/Literature

- 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, etc.
- Read and analyze poetry and dramatic works.
- Increase vocabulary through extensive reading.
- Evaluate the effectiveness of dialect and diction in literature.
- Read for extended periods of time and select a wide variety of materials to read for pleasure.

Listening

- 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.
- Evaluate how effective dialect and diction are in oral presentations.

Speaking

- Plan and deliver a 5-10-minute formal oral presentation.
- Discuss and answer questions in all subject areas.
- Analyze speeches and oral presentations for accuracy, bias, point of view, assumptions, purpose and style.
- Present research information in a speech.
- Develop criteria and use to evaluate speaking performance of self and others.
- Demonstrate and recognize effectiveness of formal and informal language according to situation, purpose and audience.

Writing

- Write in a variety of forms with an emphasis on expository (explanation) and technical writings.
- 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 in all subject areas.
- Develop and use criteria (standards) for evaluating writings of self and others.
- Use characteristics of good literature to refine personal writing style.
- Write for extended periods of time.
- Use technology such as on-line service, electronic mail, multi-media equipment, word processing and desktop publishing.

Research

- Write documented research papers.
- Complete a variety of long-term projects such as videos and portfolios in all subject areas.
- Gather and organize information from various sources to present clearly to others.

Sample PACT Questions

PACT questions are not available for distribution at this time.

Activities:

- Read the same book your child is reading and have a book talk 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.
- Read aloud to your child.
- Encourage your child to read and write, JUST FOR FUN!

Books:

- Achebe, Chinua. *Things Fall Apart.*
- Chaucer, Geoffrey. *The Canterbury Tales.*
- Golding, William. *The Lord of the Flies.*
- Kingsolver, Barbara. *The Bean Trees.*
- Orwell, George. *1984.*
- Tan, Amy. *The Joy Luck Club.*

Websites:

- Children's Literature Website – www.acs.ucalgary.ca/~dkbrown/bestbooks
- Georgia Department of Education – www.glc.k12.ga.us
- Learning Page.com – www.sitesforteachers.com
- Carol Hurst's Children's Literature Site – www.carolhurst.com
- Surfing the Net with Kids – www.surfnetkids.com
- A+ Research and Writing – www.ipl.org/teen/aplus
- United States Department of Education – www.ed.gov.pubs/parents
- South Carolina Department of Education – www.myscschools.com
- National Association for the Education of Young Children – www.naeyc.org
- National Parent Teacher Association – www.pta.org
- National Parent Information Network – www.npin.org
- Romantic Circles – www.rc.umd.edu
- Folger Shakespeare Library – www.folger.edu

SCIENCE

Students will be able to:

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.

Life Science

- Understand the appropriate technology used to study cells and compare prokaryotic and eukaryotic cells, identifying the cellular structures and their functions.
- Investigate and explain chemical reactions in cells.
- Compare DNA and RNA, and explain their function and importance in the cell.
- Evaluate the impact of genetic research and technology on society.
- Investigate and describe the relationship between cells, tissues, organs and organ systems of plants and animals.
- Investigate and discuss how species evolve over time, the scientific evidence that illustrates and reveals evolutionary changes, and Charles Darwin's contributions to the study of evolution.
- Investigate biological classifications of organisms.
- Investigate the interdependence among organisms and the biotic and abiotic factors influencing ecosystems.
- Discuss the impact of human beings on ecosystems and the use of technology in environmental studies.
- Investigate the process of photosynthesis.
- Analyze the energy cycle in cells and its function in sustaining the organism.
- Discuss and analyze energy and entropy as they apply to biological systems.
- Investigate and describe the nervous systems of multicellular animals.
- Investigate behavioral responses of organisms to internal change and external stimuli and research behavioral studies, and the use of technology to study behavior.

Earth Science

- Investigate the internal and external sources of Earth's energy.
- Understand how the transfer of Earth's internal heat relates to plate tectonics.
- Analyze the causes for global climates and seasons, and explain geographic variations.
- Compare and contrast weather patterns and conditions.
- Analyze the pros and cons of living in areas affected by natural hazards.
- Investigate how Earth's oceans are affected by both internal and external sources of energy.
- Evaluate human interventions to reduce the effects of rising sea level and coastal erosion.
- Investigate how elements, such as carbon, oxygen and nitrogen, cycle through the atmosphere, oceans, rocks and living organisms.
- Analyze how the use and recovery of fossil fuels affects the environment.
- Evaluate the importance of limiting consumption of nonrenewable resources.
- Describe the scientific theory of how our solar system was formed.
- Investigate and describe techniques of using rocks and fossils to determine the history of geologic events.
- Investigate the ongoing geological and biological changes of the Earth's system.
- Investigate the historical development of scientific theories for the origin and evolution of the universe.
- Identify the contributions of Copernicus, Kepler and Galileo.
- Identify examples of technology used to provide evidence about the history and origin of the universe.
- Describe the life cycle of stars.
- Identify the location of our sun in the Milky Way Galaxy and infer how gravity and motion affect the galaxy formation.

Physical Science

- Investigate the structure of an atom and the component particles of an atom.
- Investigate physical and chemical evidences for the existence and structure of atoms, and trace the historical development of the atomic and nuclear models.
- Compare and contrast the energy released by nuclear reactions and chemical reactions, fission and fusion reactions.
- Debate the consequences of the development of the atomic bomb, nuclear power plants and medical technologies.
- Investigate, compare and contrast elements and isotopes, using the periodic table and physical and chemical properties.

Students will be able to:

- Compare and contrast elements and compounds, and use chemical formulas to represent compounds.
- Investigate the physical properties of water, concentrated and diluted mixtures, and how solubility varies among different solutes.
- Investigate the bonding of molecules and atoms, comparing and contrasting solids, liquids and gases.
- Investigate and explain the chemical reactions and changes that take place and classify reactions as energy-absorbing or energy-releasing.
- Analyze the bonding of carbon atoms to form a variety of structures.
- Investigate acids and bases in terms of their physical characteristics and pH, and the role pH plays in the development of consumer products.
- Investigate the effects of temperature, particle size, stirring, concentration and catalysts, such as metal surfaces, on chemical reaction rates (food spoilage, storage of film and batteries, and digestive aids).
- Trace the historical development of the understanding of forces, citing contributions of specific scientists.
- Investigate the motion of an object in terms of Newton's three laws of motion.
- Investigate and describe gravitational attractive forces between two masses.
- Examine and demonstrate the interaction of like and unlike charges and electrostatic attraction.
- Investigate electromagnetic forces.
- Construct, diagram, compare and contrast series and parallel circuits.
- Evaluate the transformations between forms of energy (between potential and kinetic, and other forms of energy).
- Describe the relationships between energy, work, power and efficiency.
- Evaluate the effects of varying the temperature on atomic or molecular motion.
- Compare and contrast the environmental impact of power plants and the use of fossil fuels, water and nuclear energy to produce electricity.
- Investigate the properties and behavior of sound and seismic waves, waves on water, and light waves and the transfer of energy when they interact with matter.
- Examine electromagnetic waves (radio waves, microwaves and x-rays) and compare and contrast the parts of the electromagnetic spectrum in terms of energy.
- Investigate and describe light in terms of absorbing and releasing energy by electrons and wavelengths.
- Compare insulators, conductors and semiconductors on the flow of electrons and describe superconductors.

Sample PACT Questions

PACT questions are not available for distribution at this time.

Websites:

- South Carolina Department of Education – www.myscschools.com
- South Carolina ETV's Resources for Teachers, Students and Parents – www.knowitall.org
- South Carolina Forestry Commission – www.state.sc.us
- South Carolina Aquarium, Links – www.scaquarium.org
- SC MAPS – www.ces.clemson.edu/scmaps
- National Parent Information Network – www.npin.org
- The Smithsonian Institution – www.si.edu
- The Discovery Channel Online – www.dsc.com/online
- The Weather Channel – www.weather.com/
- Exploratorium – www.exploratorium.edu
- Chemistry Societies' Network-Visual Interpretation of the Table of Elements – www.chemsoc.org/viselements/
- Amusement Park Physics – www.learner.org/exhibits/parkphysics/
- The Particle Adventure, The Fundamentals of Matter and Forces – www.particleadventure.org/

Students will be able to:

Understand the impact of scarcity and choice on economic activity

- Show how scarcity and choice are related.
- Describe the choices families make in their budget.
- Show how money, goods and services link businesses and households.
- Know what scarce resources are.
- Show how choices lead to opportunity cost and trade-offs.
- Explain economic decision making based on marginal benefit and marginal cost analysis.

Understand the role of supply and demand in market operations

- Explain the law of supply and demand.
- Identify the nature and role of competition in markets.
- Analyze the difference between changes in the quantity demanded or supplied, and changes in the level of demand or supply.
- Explain the function of market equilibrium and the mechanism for eliminating shortages and surpluses.

Understand the role of government in the operation of markets

- Debate the role of subsidies and taxes.
- Compare proportional, progressive and regressive taxes.
- Defend the role of government in income redistribution.

Understand the national economy and economic policy

- Explain selected indicators of economic health.
- Explain the difference between nominal and real gross domestic product.
- Compare the different types of unemployment.
- Identify the causes of inflation.
- Describe the makeup and function of the Federal Reserve System.

Understand the costs and benefits of trade and the global economy

- Explain the balance of trade.
- Explain the principles of absolute and comparative advantage.
- Identify barriers to international trade.
- Debate the advantages and disadvantages of free trade.

Sample PACT Questions

PACT questions are not available for distribution at this time.

Activities:

- Subscribe to and read a local newspaper with your child.
- View programs on PBS such as *Wall Street Week in Review* and *Nightly Business Report* with your child.
- Have your child talk to grandparents about life during the Great Depression.
- Help your child conduct an informal survey on the government's role in the economy.
- Have your child compare prices of food at several different grocery stores and try and conclude why there are differences.
- Have your child keep a budget for his or her expenses.

Books:

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

Websites:

- U.S. Securities and Exchange Commission – www.sec.gov/
- Workers of America – www.woa.org
- This Week on Line – www.dtonline.com/index.htm
- Bureau of the Mint – www.treas.gov/mint/
- U.S. Department of Commerce - www.doc.gov/
- Census Bureau – www.census.gov/
- World Bank – www.worldbank.org/

Government and Political Science: Power, Authority and Governance

Students will be able to:

Understand the origins and functions of government

- Debate the need and purpose of government.
- Decide how the "rule of law" protects individual rights.
- Explain the purposes that constitutions serve.

Understand the foundations of American democracy

- Design a chart that shows the main ideas of the American Constitution and the Declaration of Independence.
- Assess the role of diversity in American society.
- Draw conclusions about the character of American political conflict.
- Identify important American ideas.

Understand the role of the United States' Constitution in American democracy

- Chart the division of power within the federal government and between federal and state governments.
- Explain the major responsibilities of state and local government.
- Defend the concept of due process and the importance of the individual.
- Appraise the role of special interest groups in America.

Understand the relationship between the United States and other nations of the world

- Analyze how United States foreign policy is formulated and how it is carried out.
- Evaluate the role of international organizations in the world today.

Understand the rights and responsibilities of a United States' citizen today

- Defend the importance of being knowledgeable about public affairs.
- Assess the important of political leadership and public service in a constitutional democracy.
- Compare the difference between political rights and personal rights.

Sample PACT Questions

PACT questions are not available for distribution at this time.

Activities:

- Subscribe to a local newspaper and read it with your child.
- Listen to the news on television with your child.
- Write a story describing what life would be like without strong central government.
- Have your child ask adult friends or relatives about their role as citizens.
- Keep a log of the activities of political parties within your local area.
- Have your child volunteer to help a local political party.
- Take your child with you when you vote in a local, state or national election.
- Take your child on a visit to the state or national capital.
- Have your child apply to be a page for your senator in Washington.
- Have your child 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.*

Websites:

- Project Vote Smart – www.votesmart.org/index.html
- U.S. Census Bureau – www.census.gov
- Republican Party – www.rnc.org
- Democratic Party – www.democrats.org
- U.S. Department of State – www.state.gov
- U.S. Information Agency – www.gaia.info.usaid.gov/

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