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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 ninth 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 (history of the world to 1500: time, continuity, and change; government/political science: power, authority, and governance; geography: people, places, and environments; economics: production, distribution, and consumption). 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 9th 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

A Guide for Parents and Families About What Your 9th 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 **9th Grade**. They are provided to help you become familiar with what your child is expected to do at the end of **9th 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 **9th 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 will 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:

- 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.com – 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

- Read a variety of literature and analyze it with regard to form, literary terms and elements, author's style and purpose, use of images, points of view and historical significance.
- Analyze writing for accuracy and bias.
- Read a variety of print materials and analyze them for clarity and accuracy of information.
- Increase vocabulary through extensive reading.
- Follow written instructions to perform tasks such as completing an application or using computer software.
- Read and analyze drama (plays).
- Determine how effective dialect and diction are in works of literature.
- Demonstrate a confident ability to use skills learned previously to read a range of simple-to-difficult materials.
- Read for extended periods of time and select and read a wide variety of print materials for pleasure.

Listening

- Listen to and analyze information for accuracy, bias and speaker's purpose.
- Listen critically to understand various perspectives and ask good questions to clarify viewpoints of others in discussions.
- Increase vocabulary through listening.
- Recognize and demonstrate good listening skills in conferences and interviews.
- Determine how effective dialect and diction are in oral presentations.

Speaking

- Present and evaluate dramatic readings from literature such as poems, monologues, scenes or stories.
- Orally respond to a variety of reading materials in all subject areas.
- Analyze spoken information for bias, accuracy, purpose, point of view and style.
- Plan spoken presentations in all subject areas, giving sources of written research used, and answer questions about the presentation.
- Evaluate self and peers using established criteria (standards) of speaking performance.
- Understand and adjust the use of formal and informal language to fit an audience and purpose when speaking.

Writing

- Write narrative, expository, literary and technical pieces to inform, explain, analyze and entertain.
- Write to interpret, analyze and evaluate ideas.
- Write responses to readings in all subject areas.
- Write to understand ideas and record experiences.
- Set criteria (standards) for judging his/her own writings and the writing of others.
- Use rules of standard English confidently in writing a range of simple-to-more-complex pieces.
- Demonstrate qualities of good written communication such as arranging information clearly and logically, revising and editing for clarity, gauging the impact of the communication on audience, etc.
- Select and write in a wide variety of forms including personal notes, letters, speeches, plays, poems, reports, journals, applications, résumés and hypertext.
- Write for extended periods of time.
- Use word processing routinely and use desktop publishing skills.

Research

- Analyze and bring together information from a variety of sources to produce clear, effective reports and papers.
- Credit the sources of ideas and information used in reports and papers.
- Use electronic databases to locate information.
- Apply research skills learned previously to new research situations.
- Complete long-term projects such as research projects, videos and portfolios in all subject areas.

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 movies and plays to books read.
- Encourage your child to keep a journal.
- Encourage your child to write letters or send e-mail to family and friends.
- Practice completing job applications with your child.
- Reward your child with books or a journal.
- Get your child a library card and regularly go to the library or bookstore.
- Encourage your child to write a script and create a video related to a topic of interest or which mirrors the theme of something he/she has read.
- 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.
- Allow your child to read and write, JUST FOR FUN!

(ENGLISH/LANGUAGE ARTS CONTINUED ON BACK)

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 [illegible]a 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.
- 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).

(SCIENCE CONTINUED ON BACK)

SOCIAL STUDIES

Global Studies I

Students will be able to:

History of the World to 1500: Time, Continuity and Change

- Describe the rise of Neolithic communities and their emergence into agricultural societies.
- Analyze the major characteristics of civilization and how the early civilizations emerged in Mesopotamia, the Nile Valley, the Indus Valley and the Huang Ho Valley from 4000 to 1000 B.C.
- Explain the major political, social and cultural trends and technological innovations in Africa, Europe, Asia and the Americas from 2000 to 1000 B.C.
- Describe the emergence of Aegean civilizations and their relationship to the peoples of the eastern Mediterranean and Southwest Asia from 600 to 200 B.C.
- Analyze the development of religions and large scale empires in the Mediterranean world, China, Southwest Asia and India from 500 B.C. to A.D. 300.
- Interpret common themes among the classical traditions, religions and giant empires in Africa, Asia, Europe and Mesoamerica, from A.D. 300 to 1200.
- Examine the transformation of European society and culture from A.D. 1000 to 1400.
- Trace the rise of the Mongol Empire and its consequences for Eurasian peoples from A.D. 1200 to 1350.

Government/Political Science: Power, Authority and Governance

- Understand the origins and functions of government.
- Compare and contrast the civic life, politics and forms of government in major civilizations.
- Trace the causes and consequences of major governmental changes within selected nations and empires.
- Examine and illustrate how governmental decisions are influenced by physical and cultural geography.

Geography: People, Places and Environments

- Understand the world in spatial terms by using maps, geographic models and technologies to explain the relationships and patterns of human movement and environmental decision making.
- Demonstrate an understanding of places and regions, and how the relationships between humans and the physical environment lead to a sense of personal and community involvement.
- Compare the dynamics of the four basic components of the Earth's physical systems: the atmosphere, biosphere, lithosphere, and hydrosphere, and their interaction along with the importance of ecosystems in environmental issues.
- Analyze the role of human systems on Earth including trends in numbers, migration and cultural influences in relation to society, politics and economics.
- Recognize the global impact of human changes on the physical environment and the use of Earth's resources.
- Use geography to understand how the Earth's physical features and human factors have affected history.

Economics: Production, Distribution and Consumption

- Demonstrate an understanding of how scarcity, choice and the principles of trade affect economic activity.
- Trace the increasing complexity of monetary systems.
- Assess how the division of labor, specialization and increase of technology have impacted productivity and trade.
- Examine and provide examples of economic decision-making based upon geographic factors.

Sample PACT Questions

PACT questions are not available for distribution at this time.

Activities:

Have your child:

- Watch and discuss the nightly news.
- Use travel and news magazines to supplement school activities.
- View programs on PBS, the History Channel, Discovery Channel and A&E.
- Read about people from a variety of places and time periods.
- Interview and record the oral histories of family and friends.

Books:

- Adkins, Lesley and Roy Adkins. *Handbook to Life in Ancient Rome.*
- Atchity, Kenneth J., ed. *The Classical Greek Reader.*
- Bunsen, Matthew. *Encyclopedia of the Middle Ages.*
- Cook, Harry. *Samurai: The Story of a Warrior Tradition.*
- Dersin, Diane, ed. *What Life Was Like on the Banks of the Nile, Egypt 3050-30 BC.*
- Dunn, John. *The Spread of Islam.*
- Ebry, Patricia. *The Cambridge Illustrated History of China.*
- *The First Americans.*
- Hamilton, Edith. *The Greek Way.*
- Hinds, Kathryn. *India's Gupta Dynasty.*
- Konigsburg, E.L. *A Proud Taste For Scarlet and Miniver.*
- Macaulay, David. *Pyramid.*
- Ross, Frank, Jr. *Oracle Bones, Stars, and Wheelbarrows.*
- Saggs, H.W.F. *Babylonians.*
- Sheng-Hen. *China's Buried Kingdoms.*
- Statler, Oliver. *Japanese Inn.*

Websites:

- Electronic Research – Library of Congress http://lcweb.loc.gov/global/explore/
- National Gallery of Art – www.nga.gov
- National Geographic Society – www.magma.nationalgeographic.com/
- National Museum of African Art – www.si.edu/nmafa/

Books:

- Cisneros, Sandra. *The House on Mango Street.*
- Hemingway, Ernest. *The Old Man and The Sea.*
- Kennedy, John F. *Profiles in Courage.*
- Lee, Harper. *To Kill A Mockingbird.*
- Orwell, George. *Animal Farm.*
- Rawlings, Marjorie Kinnan. *The Yearling.*
- Steinbeck, John. *The Pearl.*
- Steinbeck, John. *The Red Pony.*
- Wilder, Thornton. *Our Town.*

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

- 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/

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