

**Program of Studies
Overview K - 3
Fairfax County Public Schools**





INTRODUCTION

Fairfax County Public Schools is pleased to provide you with a condensed version of the Elementary *Program of Studies (POS)*. It is intended to furnish information about the curriculum your child will be studying in the core disciplines of language arts, mathematics, science, and social studies. Your child's school has the complete *POS* for every discipline and grade level. You may review the complete elementary *Program of Studies* at the school upon request. Arrangements may be made through your child's teacher or school principal. Additional copies of this document can be downloaded from: <http://www.fcps.edu>

The *Program of Studies* content covers the same curriculum as the Standards of Learning (SOL) set by the Commonwealth of Virginia, and in many cases it goes beyond state standards. As you review the SOL, you may note that there is not an exact match with the Fairfax County *POS* by grade level. However, all the Virginia Standards are included and will be taught by the end of third, fourth (social studies only), and fifth grades so that your child will be fully prepared to take the SOL tests.

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KINDERGARTEN LANGUAGE ARTS

The language arts curriculum includes objectives that support students' development in the skills of reading, writing, and oral language. These skills are developed through direct instruction, modeling by teachers, and guided practice. Teachers plan a balance of learning experiences, which build upon oral language and include phonemic awareness and phonics. Both fiction and nonfiction materials are used.

Reading

Students:

- begin to understand the concept of letter and word
- focus on some phonics (sound/letter) cues
- begin to make predictions using meaning and language structure cues
- recognize upper and lower case letters of the alphabet
- discuss basic story elements (characters, setting, problems, solutions, beginning, middle, end)
- listen to a variety of literature (fiction, nonfiction, poetry)
- become aware of printed informational sources (tradebooks, picture dictionaries, electronic media)
- select and share books
- use the computer to listen to and read electronic books
- learn new vocabulary related to literature and content area study

Writing

Students:

- develop an awareness of the need for spaces between words
- demonstrate a developing knowledge of letter-sound relationships (phonics) when writing
- select a topic for writing
- begin to write about topics of personal interest or topics of general interest
- use a variety of writing materials (e.g., different types of paper, a wide assortment of writing instruments)
- draw pictures with letters and words to communicate a message
- write own name
- use word processing and multimedia software to write

Oral Language

Students:

- stay on topic in classroom discussions
- verbalize their own ideas
- retell a favorite story or a favorite part of a story
- recall few story elements with assistance
- ask questions to clarify understanding
- share information from any source about a specific topic with classmates
- follow simple oral directions
- recognize and make rhyming words

- recognize words that start with the same/different sound
- develop phonemic awareness (identify and manipulate phonemes) through shared reading, poetry, songs, and finger plays
- participate in creative dramatics
- report results of a group activity
- listen to electronic books

KINDERGARTEN MATHEMATICS

The content of the mathematics objectives supports four goals for students: becoming mathematical problem solvers, communicating mathematically, reasoning mathematically, and making mathematical connections. Concepts are introduced and developed through the use of models and hands-on materials. Students apply concepts and skills through a variety of problem-solving experiences.

Number Concepts, Theory, Sense

Students:

- estimate and compare quantities using *many, few, none, more, fewer, same, and different*
- match the objects in two groups using one-to-one correspondence
- represent numerals up to 10 with objects, write numerals to 10
- count groups of 10 or fewer objects saying how many; record the number
- count backward from 10
- seriate (order) up to ten objects by length, weight, size, and number (e.g., order trains of two, four, seven, and ten)
- sequence numerals to 10, orally count to 30, and recognize numerals to 31
- find groups of objects that are one more than, one less than, and the same as a given group
- use ordinal numbers to identify position (first, second, third, fourth, and fifth)
- divide wholes into equal and not-equal parts

Operations

Students:

- tell and show a variety of ways to make 10
- explain addition and subtraction to 10 using concrete objects
- count from a given number up to 10

Measurement

Students:

- compare two objects to determine shorter/longer, taller/shorter, heavier/lighter, hotter/colder
- estimate and measure length, weight, and capacity using nonstandard units
- become aware of tools used to measure length (ruler), weight (scale), time (clock and calendar), and temperature (thermometer)
- recognize and name pennies, nickels, and dimes; determine the value of a collection of pennies and/or nickels up to ten cents
- fill in numbers on a clock
- use a calendar, stories, and songs to count and name days of the week

Geometry

Students:

- describe position and directionality of objects (left/right, top/bottom, over/under, first/last, etc.)
- recognize and sort squares, circles, triangles, and rectangles
- find and discuss plane and solid shapes in the environment

Data Analysis/Statistics/Probability

Students:

- sort and classify objects by size, shape, or color
- gather real-life data by sorting, counting and tallying
- make object graphs, picture graphs, and charts to represent data
- explore probability with concrete materials and explain results

Patterns/Functions/Algebra

Students:

- identify, copy, describe, and extend patterns
- create patterns that use objects of different color, size, and shape
- use objects to show odd/even number patterns

Problem Solving/Application

Students:

- tell, retell, and illustrate a story related to a familiar real-life situation that shows “how many all together” or “how many are left”
- represent an addition or subtraction story problem using real objects or other materials
- use strategies (e.g., act it out, draw a picture, make/use a pattern) to solve simple story problems

KINDERGARTEN SCIENCE

The Fairfax County Elementary Science *Program of Studies* is a hands-on curriculum designed to provide students with a basic understanding of Earth and space, life, and physical science concepts. Students develop a solid base of science knowledge, apply learned knowledge to solve problems, communicate information, use experimental design, and make connections to science in our everyday world. The program materials include units that provide hands-on experiences, science tradebooks, and technology such as *Windows on Science* videodiscs.

Scientific Investigation, Reasoning, and Logic

Students:

- identify basic properties of objects by direct observation
- make observations of an object from different positions and places
- sequence a set of objects according to size
- sort a set of objects into two groups based on a single attribute
- construct picture graphs using ten or fewer items
- use nonstandard units such as hands or paper clips to measure common objects
- recognize patterns to predict a sequence of objects or events
- develop a question from one or more observations
- describe objects in both pictorial and verbal form
- recognize unusual or unexpected results in an activity

Earth and Space Science

Students:

- investigate and understand that change occurs over time
- observe and describe seasonal changes
- identify and use appropriate seasonal clothing
- identify their own adaptations to the seasons
- observe and describe natural and man-made things that may change over time

Students:

- define and examine materials that can be reused, recycled, and conserved
- identify objects that can be reused and recycled
- recycle waste paper to create an art object
- observe and discuss how to protect the environment at home and school
- observe how to conserve water and energy at home and in school

Life Science

Students:

- investigate and understand basic needs and the life processes of plants and animals
- sequence the life cycle of a pumpkin from seed to mature plant
- identify and discuss the habitat, food, and physical characteristics of squirrels and ants
- observe and record the daily activities of an ant farm

- identify the body parts of an ant
- create and assemble a paper ant
- illustrate an ant colony
- identify and discuss the life cycle of an ant from egg to adult

Students:

- explore the human senses of sight, smell, hearing, touch, and taste
- identify the five senses and the sensory organs
- use sight to separate objects and identify missing objects from a set
- create a class graph of students' eye colors
- identify the sources of various sounds
- use descriptive vocabulary to describe the taste of various foods
- match objects and scents
- sort and graph various textures using sensory descriptors

Physical/Chemical Science

Students:

- investigate and understand that objects can be described in terms of their physical properties
- generate color words to describe objects
- observe and describe colors in the environment
- recognize and illustrate familiar shapes within their physical world
- describe the texture, size, and form of the various shapes
- use prepositions to describe the position of objects

Students:

- explore and understand the properties of water that can be observed and tested
- observe and differentiate between items that sink and float
- create a sand hill and observe that the natural flow of water is downhill
- measure sand with nonstandard units
- construct simple boats and test their buoyancy

Students:

- investigate and understand that magnets have different effects on various materials
- identify objects that are attracted by magnets
- classify common objects by attraction and nonattraction to magnets
- observe and discuss the strength of magnets

KINDERGARTEN SOCIAL STUDIES

Social studies instruction incorporates the four strands of history, geography, civics, and economics. Students learn about themselves, their families, and their community. They study national holidays and the people or deeds associated with those holidays. Students also study various family traditions and celebrations. They learn about history by studying people and events of other times and places.

History

Students:

- identify themselves as individuals and part of a family and a community
- share family traditions and celebrations
- compare family life in the past with life in the present
- hear stories about famous Americans and past events and legends
- explore American traditions, leaders, and holidays
- identify patriotic symbols -- United States flag, bald eagle, cardinal, and dogwood tree
- recognize devices for measuring passage of time -- clocks, watches, and calendars
- become aware of historical information through listening, observing, reading, writing, technology, drawing, music, and poetry

Geography

Students:

- use basic terms such as *near/far*, *left/right*, *above/below*, and *behind/in front* to identify relative locations of people, places, and things
- use simple maps and globes to locate land water
- become aware of the physical shape of the United States and Virginia
- locate places references in stories and real life situations

Civics

Students:

- become aware of individual rights and responsibilities
- participate in developing classroom rules
- demonstrate respect and fairness within the school community
- learn behaviors of a good citizen
- recognize the Pledge of Allegiance and the President as the leader of the United States

Economics

Students:

- recognize the differences between basic needs and wants
- discuss how people earn a living in the community
- recognize that people use money to purchase goods
- participate in dramatic play activities that show how money is used to buy goods and services, e.g., banks, grocery stores, and restaurants

GRADE 1 LANGUAGE ARTS

The language arts curriculum includes objectives that support students' development in the skills of reading, writing, and oral language. These skills are developed through direct instruction, modeling by teachers, and guided practice. Teachers balance learning experiences and build upon oral language including phonemic awareness, phonics, and use of fiction/nonfiction materials for reading practice.

Reading

Students:

- develop concepts about print
- use phonics, language structure, and meaning when reading
- apply phonetic principles by using beginning, middle, and ending sounds to read
- recognize and self-correct when errors have been made while reading
- use a variety of strategies to solve problems when reading
- learn about basic story elements and use them to aid comprehension
- demonstrate understanding of punctuation when reading aloud
- read a wide variety of materials, including basal textbooks, tradebooks, library books, and other students' writing
- relate reading to personal knowledge and experience
- learn new vocabulary related to literature and content area study

Writing

Students:

- write in response to reading
- write daily, using a wide variety of materials
- plan, draft, confer, revise, edit, and publish stories and information
- organize writing to include beginning, middle, and end
- write sentences with two parts
- demonstrate functional use of nouns, verbs, adjectives, and pronouns
- apply capitalization rules at beginning of sentences, for the pronoun *I*, and for names of people and pets
- apply knowledge of letter-sound relationships to spelling when writing
- form and use manuscript letters to communicate a message
- use word processing software and application software

Oral Language

Students:

- hear, say, and understand sounds in words (phonemic awareness)
- develop ability to use words correctly during conversation and discussion
- demonstrate functional use of nouns, verbs, adjectives, and pronouns
- participate in dramatization, role-playing, shared reading, and storytelling
- develop vocabulary as they listen to teachers read aloud
- gather information with interview questions
- incorporate learned vocabulary into conversation and discussion
- retell a story, recount information, or follow oral directions

GRADE 1 MATHEMATICS

The content of the mathematics objectives supports four goals for students: becoming mathematical problem solvers, communicating mathematically, reasoning mathematically, and making mathematical connections. Concepts are introduced and developed through the use of models and hands-on materials. Students apply concepts and skills through a variety of problem-solving experiences.

Number Concepts, Theory, Sense

Students:

- estimate, count, represent, recognize, and write numbers to 100
- name a given number in a variety of ways
- identify ordinal position through tenth
- understand the concept of addition
- model different subtraction situations including comparison, take away, and part-part-whole
- explore the relationship between addition and subtraction
- use and explain strategies for learning addition and subtraction facts
- estimate and compare sizes of groups
- identify and represent concepts of one-half and one-fourth
- model two-digit numbers by grouping by tens and identifying the ones left over
- exchange tens for ones and vice versa
- read and write number words to ten

Operations

Students:

- write and solve one-digit addition and subtraction sentences written horizontally and vertically, using plus, minus, and equal signs
- mentally compute addition facts to ten and the corresponding subtraction facts
- estimate and add three addends, sums to ten
- find sums for doubles to $9 + 9$

Measurement

Students:

- estimate, compare, and measure
 - length (nonstandard units and inches)
 - weight (relative to one pound and one kilogram)
 - capacity (nonstandard units and cups, pints, and quarts)
- relate temperature to heat and cold
- read time to the hour and half-hour
- recognize calendar patterns; sequence time
- recognize value of collections of pennies, of nickels, and of dimes and a collection of mixed coins to \$1.00

Geometry

Students:

- recognize, identify, and draw two-dimensional shapes (triangle, square, circle, rectangle) and explore three-dimensional solids
- sort shapes by size, shape, sides, or corners
- recognize symmetrical shapes
- explore congruent shapes

Data Analysis, Statistics, Probability

Students:

- collect, count, sort, and record data
- read, record, and interpret data on bar graphs, object graphs, and pictographs
- explore probability with concrete materials and explain findings

Patterns, Functions, Algebra

Students:

- count forward by twos, fives, and tens to 100
- identify, describe, extend, and create patterns with objects and numbers
- find missing parts in part-whole situations
- find a simple function rule given input and output data

Problem Solving/Application

Students:

- use strategies (e.g., make/use a list, build a model, use a pattern) and appropriate materials to solve story problems
- pose and solve problems from everyday life
- share and explain thinking about how a problem was solved

GRADE 1 SCIENCE

The Fairfax County Elementary Science *Program of Studies* is a hands-on curriculum designed to provide students with a basic understanding of Earth and space, life, and physical science concepts. Students develop a solid base of science knowledge, apply learned knowledge to solve problems, communicate information, use experimental design, and make connections to science in our everyday world. The program materials include units that provide hands-on experiences, science tradebooks, *Windows on Science* videodiscs, and specific web sites correlated to each science unit.

Scientific Investigation, Reasoning, and Logic

Students:

- plan, conduct, and participate in science investigations
- use simple instruments such as the magnifying glass and their five senses to observe the physical environment
- arrange and classify objects according to attributes or properties
- communicate data orally and through simple graphs, pictures, written statements, and numbers
- measure length, mass, and volume using standard and nonstandard units
- make predictions based on patterns of observation rather than random guesses
- conduct simple experiments to answer questions

Earth and Space Science

Students:

- investigate and understand Earth's natural resources and how to protect them
- explain why air, water, and soil are natural resources
- describe ways to protect Earth's natural resources

Students:

- develop an understanding of seasonal changes and cyclical patterns in nature, including temperature, precipitation, and cloud formation
- observe and communicate the weather orally and through graphic representations both on a daily basis and over a period of time
- use a thermometer as a tool to record the rise and fall of temperature
- observe and describe in general terms how a cloud is formed (water cycle)
- observe/describe various states of water--solid, liquid, gas (ice, water, water vapor/steam)

Life Science

Students:

- use their senses to explore their surroundings and obtain different information from each sense
- work in groups to generate a visual organizer (a web or chart) showing how the senses can be used to describe the world around them
- observe plants and animals during seasonal changes
- gather and record data in a factual manner

Students:

- investigate and understand that plants have life needs and functional parts and can be classified according to certain characteristics
- identify the characteristics of plants including edible or nonedible, flowering or nonflowering, evergreen or deciduous (trees that lose their leaves in the winter)
- identify the needs of a plant including, air, water, light, and a place to grow
- identify the various sources from which plants grow, including seeds, bulbs, and parts of plants
- grow plants from seed and identify plant structures (roots, stems, leaves) and their functions
- describe methods by which seeds travel
- investigate and understand the life cycle of plants
- understand that plants are a natural resource and that they are important to all life

Students:

- investigate and understand that animals have life needs and specific physical characteristics
- identify the characteristics of animals including whether they are wild or tame or live in water homes or land homes
- identify the needs of animals including air, food, water, and a suitable place to live
- understand that animals have physical characteristics such as body coverings (scales, skin, hair, feathers), body shapes, different numbers of appendages, and body movements
- observe and record observations of earthworms
- identify the basic body parts of an earthworm and the stages of the earthworm's life cycle including egg, hatchling, and adult
- investigate through experimentation, observation, and data records an earthworm's reaction to different types of soil and light
- create an appropriate habitat for an earthworm using knowledge from investigations

Students:

- investigate and understand that natural resources are limited
- identify the following as natural resources: plants and animals, water, air, land, minerals, forests, and soils
- describe how reducing, reusing, and recycling wastes can help save natural resources

Physical Science

Students:

- investigate and understand how different materials interact with water
- observe and describe the results of mixing liquids and some everyday solids, such as baking soda, chalk, powdered drink mix, sugar, and salt; and recognize that some solids, such as salt, will quickly dissolve in water while others, such as chalk, will not
- recognize that some common liquids, such as food coloring and vinegar, mix with water while others, such as cooking oil, will not
- recognize that some substances will dissolve more easily in hot water than in cold water

Students:

- investigate the sources of light and develop an understanding of the properties of light
- recognize the sun as a source of heat and light
- understand that light travels in a straight line and that opaque objects cast shadows
- create a rainbow using diverse materials such as prisms and liquids

GRADE 1 SOCIAL STUDIES

Social studies instruction incorporates the four strands of history, geography, civics, and economics. Students learn how family life and communities change over time. They study individuals who have made significant contributions to the United States and its history. They learn about national holidays and the people or deeds associated with those holidays. Students also explore various cultural traditions and celebrations.

History

Students:

- develop a basic concept of past and present and the passage of time
- discuss how communities and family life have changed over time
- study people who have made significant contributions to the United States and its history
- study the lives of people and events associated with major national holidays
- compare everyday life in the past with life in the present in the United States
- recognize symbols and traditions of the United States and Virginia, for example, the national and state flags
- compare cultural traditions and celebrations with others in the community and in the United States
- gather historical information about the United States from literature, art, music, and pictures
- interview to gather firsthand information
- determine how people in the past solved problems and make connections to how people currently solve problems

Geography

Students:

- explain basic geography terminology
- use basic map skills such as symbols and cardinal directions to locate places
- construct simple maps using basic map symbols in the map legend
- describe how climate, location, and physical surroundings affect the way people live and work

Civics

Students:

- know and apply traits of a good citizen
- learn the Pledge of Allegiance to the American flag
- demonstrate an understanding of individual responsibilities and rights
- discuss why rules are needed, who makes them, and who enforces them
- participate in democratic processes, such as making rules and voting
- recognize that communities in Virginia include people who have diverse ethnic origins, customs, and traditions, who make contributions to their communities, and who are united as Americans by common principles

Economics

Students:

- give examples of basic economic terms such as *goods, buyer, seller, and services*
- give examples of making choices
- explain how money is used to buy goods and services
- describe how technology and transportation are used to provide goods and services
- recognize that people save money for the future to purchase goods and services

GRADE 2 LANGUAGE ARTS

The language arts curriculum includes objectives that support students' development in the skills of reading, writing, and oral language. These skills are developed through direct instruction, modeling by teachers, and guided practice. Teachers plan a balance of learning experiences that build upon oral language and include phonemic awareness, phonics, and use of fiction and nonfiction for reading practice.

Reading

Students:

- use phonics, language structure, and meaning when reading
- apply knowledge of phonetic principles when reading
- apply knowledge of structural analysis of words, including word endings, contractions, and compound words
- use a variety of strategies to self-correct for comprehension
- use story structure and sequence for comprehension
- demonstrate understanding of punctuation when reading aloud
- read a wide variety of materials, including basal textbooks, tradebooks, library books, and other students' writing
- read a wide variety of literature including fiction, nonfiction, and poetry
- relate reading to personal knowledge and experience
- form opinions about content of reading
- learn new vocabulary related to literature and content area study
- use context and resources to verify meaning of new vocabulary
- locate information using features of nonfiction text and technology resources

Writing

Students:

- write daily, using a wide variety of materials
- plan, draft, confer, revise, edit, and publish a variety of genres
- organize writing to include beginning, middle, and end
- revise writing for content and organization
- write interrogative, declarative, and exclamatory sentences
- demonstrate functional use of nouns, verbs, adjectives, and pronouns
- use correct spelling of frequently used words
- use past and present tense when writing
- apply capitalization rules, end punctuation for sentences, and spelling generalizations in their daily work
- edit for capitalization, punctuation, and spelling on final drafts
- use word processing software to draft and application software to draw pictures, import graphics, and print

Oral Language

Students:

- demonstrate functional use of nouns, verbs, adjectives, and pronouns
- participate in shared reading and dramatic interpretations of literature
- develop vocabulary during read-aloud and discussion of topics
- gather information through interview questions and listening to others
- discuss content of reading, including opinions, comparisons, and inferences
- participate in classroom activities by following directions, asking for clarification, asking questions, reporting on small-group work, and persuading others

GRADE 2 MATHEMATICS

The content of the mathematics objectives supports four goals for students: becoming mathematical problem solvers, communicating mathematically, reasoning mathematically, and making mathematical connections. Concepts are introduced and developed through the use of models and hands-on materials. Students apply concepts and skills through a variety of problem-solving experiences.

Number Concepts, Theory, Sense

Students:

- estimate, count, represent, compare, and write numbers to 999
- name a given number in a variety of ways
- identify ordinal position through twentieth
- write number sentences for fact families; recognize inverse relationship between addition and subtraction; demonstrate understanding of the commutative property of addition
- model and record different subtraction situations including comparison of two groups, missing part, and take away
- write repeated addition sentences, exploring the relationship between addition and multiplication; recognize the multiplication symbol “x”
- round two-digit numbers to the nearest ten
- use and explain strategies for learning addition and subtraction facts; establish proficiency with basic facts to 18
- model, identify, write, compare, and name fractional parts of regions --
 $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{10}$
- read and write words for multiples of ten
- trade ones, tens, and hundreds

Operations

Students:

- mentally compute addition and subtraction facts to 18
- estimate, add, and subtract two-digit numbers including money amounts
- estimate and add three or more addends, sums to 18
- use multiples and arrays to solve a problem; explore division
- solve real-life problems with fractions using concrete materials

Measurement

Students:

- estimate, compare, and measure
 - length (nonstandard units, inches, centimeters, feet, and meters)
 - weight (relative to one pound and one kilogram)
 - capacity (nonstandard units, cups, pints, quarts, gallons, and liters)
- read a Fahrenheit thermometer and record temperature
- explore perimeter of polygons
- explore volume and area using concrete materials

- estimate, read, and write time to the hour and half-hour; explore time to the quarter hour
- use a calendar to determine past and future days and identify specific dates
- name and sequence the days of the week and months of the year
- trade pennies for nickels, dimes, and quarters and count a collection of mixed coins
- count, compare, and order money amounts to \$5.00; recognize dollar sign, cent sign, and decimal point
- subtract or “count on” to determine time span (on the hour)

Geometry

Students:

- identify, classify, and describe two-dimensional shapes and some three-dimensional solids and relate plane shapes to faces of solid figures
- identify lines of symmetry
- identify congruent shapes

Data Analysis, Statistics, Probability

Students:

- collect, count, record, and display data
- make and interpret charts, schedules, bar graphs, and pictographs
- conduct simple probability experiments and predict outcomes using recorded data, patterns, or observations

Patterns, Functions, Algebra

Students:

- count forward by twos, threes, fives, tens, and hundreds
- identify, describe, and create patterns with objects, symbols, and numbers; recognize patterns in number sentences; recognize and record even and odd patterns
- find missing addends
- create additive patterns
- find a simple function rule, given input and output data
- complete a sequence of ten or fewer consecutive numbers to 999

Problem Solving and Applications

Students:

- use strategies (e.g., make/use a list or chart; make/use a graph; work backward; use estimation; use a pattern) and appropriate materials to solve story problems
- pose and solve problems from everyday life situations; share and explain thinking about how a problem was solved

GRADE 2 SCIENCE

The Fairfax County Elementary Science *Program of Studies* is a hands-on curriculum designed to provide students with a basic understanding of Earth and space, life, and physical science concepts. Students develop a solid base of science knowledge, apply learned knowledge to solve problems, communicate information, use experimental design, and make connections to science in our everyday world. The program materials include units that provide hands-on experiences, science tradebooks, *Windows on Science* videodiscs, and specific web sites correlated to each science unit.

Scientific Investigation, Reasoning, and Logic

Students:

- plan, conduct, and participate in science investigations
- use two or more attributes to classify items
- construct picture and bar graphs using numbered axes
- use observations, not personal interpretations, to draw conclusions
- construct simple physical models
- recognize unexpected or unusual quantitative data

Earth and Space Science

Students:

- investigate how basic types and patterns of weather (seasonal changes) affect plants, animals, and their surroundings
- define and, when possible, observe the following behaviors of living things: migration, hibernation, estivation (summer hibernation), camouflage, adaptation, and dormancy
- describe the uses and state the importance of measuring and recording weather data
- describe the effects of severe weather patterns such as drought, floods, and storms on living things and on soils (erosion)

Life Science

Students:

- explore biological concepts through direct experiences with living things, their life cycles, and their habitats
- identify the needs of animals such as food, water, air, and a suitable environment in which to live
- classify living organisms into groups such as vertebrates (animals with backbones) or invertebrates (animals without backbones); classify vertebrates as mammals, birds, fish, reptiles, or amphibians
- identify life cycle of animals, including animals that metamorphose, such as butterflies or frogs
- describe interdependence in the animal kingdom
- create food chains and define terms such as *producer*, *consumer*, *decomposer*, *herbivore*, *carnivore*, *omnivore*, and predator-prey relationships
- describe the effect of natural forces, such as volcanoes, and living organisms on the living and nonliving parts of the environment

- describe plants and animals that live in the following environments: deserts, grasslands, rain forests, forests, ponds, streams, rivers, marshlands, and oceans
- describe and list activities of humans that affect the environment

Students:

- investigate and understand that plants produce food and oxygen, are a source of useful products, and help prevent soil erosion
- describe the life cycle of flowering plants
- list important plant products such as fiber, cotton, oil, spices, lumber, rubber, medicine, and paper
- describe how plants provide homes for animals and reduce soil pollution (help prevent erosion)

Physical Science

Students:

- understand force as the change in the motion of objects
- identify objects in motion
- define *force* as pushes and pulls that influence us all the time
- investigate magnets and their uses, and understand the following terms: *magnetic, nonmagnetic, magnetic poles, attract, and repel*

Students:

- investigate and understand the basic properties of solids, liquids, and gases
- describe the various states of water--solid, liquid, gas (ice, water, water vapor/steam)--and understand the following terms: *condensation, evaporation, melting, freezing, expanding, and contracting*
- understand that matter (solids, liquids, and gases) has mass and volume

Students:

- investigate and understand simple machines and their uses
- manipulate simple machines to determine how they function
- describe the following simple machines: lever, screw, pulley, wheel and axle, inclined plane, and wedge
- list examples of simple machines found in school, home, and work environments

GRADE 2 SOCIAL STUDIES

Social Studies instruction incorporates the four strands of history, geography, civics, and economics. Students study individuals who have made significant contributions to the United States and its history. They study three American Indian tribes from three regions (the Eastern Woodlands, Plains, and Southwest) to understand how groups adapt to their environment and meet their basic needs in different ways. Students learn about early European explorers who came to America. They study the ancient empire of Mali and the contemporary culture of Mexico.

History

Students

- study people who have made significant contributions to the United States and its history
- compare and contrast the family/daily lives of American Indian tribes of North America
- identify early European explorers, their sponsoring countries, reasons for coming to the Americas, personal motivation, and problems
- study ancient Mali, including trade, oral traditions, and the role of kings
- use artifacts, folklore, pictures, stories, and songs to gather and share information about the cultures under study
- study the contemporary culture of Mexico
- gather information from a variety of sources to study different groups of people
- develop basic strategies to organize and communicate information about the cultures under study

Geography

Students:

- identify and discuss basic geographic terminology
- use maps to locate groups under study and to trace the routes of early explorers
- locate the seven continents, four oceans, and selected rivers, lakes, and mountains.
- use maps and globes to gain information about the physical features and climate of the areas under study
- compare and contrast the ways different groups of people adapt to their environment and meet their basic needs

Civics

Students:

- show respect for the American flag by saying the Pledge of Allegiance
- study people who have made significant contributions to the United States
- participate in the democratic process in classroom situations
- demonstrate an understanding of good citizenship including rights and responsibilities in their own lives as well as in the school and community
- examine the ways that rules and decisions were made in early American Indian cultures and ancient Mali

- give examples of problem-solving strategies both in their personal lives and in the cultures under study
- recognize that the United States is a land of people who have diverse ethnic origins, customs, and traditions, who make contributions to their communities, and who are united as Americans by common principles

Economics

Students:

- explain basic economic terms such as *money, barter, trade, scarcity, consumer, and producer*
- demonstrate an understanding of the interdependence of producers and consumers
- explain how groups of people utilize human, capital, and natural resources and make economic decisions
- describe ways that the ancient Malians specialized in their job roles
- explain how people make economic choices

GRADE 3 LANGUAGE ARTS

The language arts curriculum includes objectives that support students' development in the skills of reading, writing, and oral language. These skills are developed through direct instruction, modeling by teachers, and guided practice. Teachers plan a balance of learning experiences which build upon oral language and include phonemic awareness, phonics, and the use of fiction and nonfiction materials for reading practice.

Reading

Students:

- apply knowledge of structural analysis of words, including word endings, contractions, and compound words
- cross-check and use a variety of strategies to self-correct for comprehension, including rereading
- make, confirm, or revise predictions
- use structure of a variety of informational texts and fiction for comprehension
- develop an understanding of author's craft, including fact and fantasy, figurative language, humor, poetry elements, and dialogue to aid comprehension
- relate reading to personal knowledge and experience
- learn new vocabulary related to literature and content area study
- use context and resources to verify meaning of new vocabulary
- use homophones to extend understanding
- locate information using features of nonfiction and technology resources
- share ideas, reactions, and opinions about literature and content
- support opinions with statements from text

Writing

Students:

- write in a variety of genres, including responses to reading
- organize and revise writing for content and logical sequence around a main idea
- write interrogative, declarative, and exclamatory sentences
- combine sentences to form compound sentences
- demonstrate functional use of nouns, verb tenses, adjectives, and pronouns
- develop and use knowledge of spelling conventions daily
- organize writing into paragraphs during revision
- edit for capitalization, end punctuation, and spelling on final drafts
- form and use cursive letters
- use technology, including word processing, telecommunications, and multimedia to acquire and share information

Oral Language

Students:

- demonstrate functional use of parts of speech during discussion
- dramatize stories or poems

- develop vocabulary and concepts during read-aloud and discussion of topics
- gather information through interview questions and listening to others
- discuss content of reading, including opinions, comparisons, and inferences
- participate in classroom activities by following directions, asking for clarification, sharing ideas, reporting, and persuading others

GRADE 3 MATHEMATICS

The content of the mathematics objectives supports four goals for students: becoming mathematical problem solvers, communicating mathematically, reasoning mathematically, and making mathematical connections. Concepts are introduced and developed through the use of models and hands-on materials. Students apply concepts and skills through a variety of problem-solving experiences.

Number Concepts, Theory, Sense

Students:

- read and write numbers to through hundred thousands; compare numbers to 9,999 using the symbols $>$, $<$, and $=$
- identify the place value for each digit in a six-digit number
- explore estimation strategies; round to the nearest 10 and 100
- demonstrate the inverse relationship between multiplication and division; explain the relationship between addition and multiplication
- understand the concept of multiplication; develop and use strategies to learn the multiplication facts through nines
- illustrate the concept of division in a problem-solving setting; record related division facts
- recognize, compare, and write fractions less than one
- count, read, and write decimals through hundredths
- relate tenths as fractions to tenths as decimals; compare and order decimals through tenths

Operations

Students:

- estimate, add, and subtract three-digit numbers with and without regrouping; extend the process to four-digit numbers; check computation using inverse operation
- mentally compute multiplication facts through nines; identify related division facts
- estimate and multiply one-digit numbers by two-digit numbers
- model division situations with and without remainders; estimate and divide a one- or two-digit number by a one-digit number
- estimate, add, and subtract fractions with like denominators using concrete materials and pictorial models
- find fractional parts of a group of up to 30 objects
- estimate, add, and subtract decimals to tenths using concrete materials and paper/pencil

Measurement

Students:

- estimate, measure, and compare
 - length to the nearest half inch and centimeter
 - weight (ounces, pounds, grams, and kilograms) using a balance
 - capacity in nonstandard units and standard units (cups, pints, quarts, gallons, and liters)
- read Fahrenheit and Celsius temperature on a thermometer
- find perimeter and area in problem-solving settings
- find volume of rectangular solids using concrete materials
- read time to the nearest five minutes; extend to the nearest minute

- know time equivalencies (month/year, day/week, minute/hour, hour/day)
- count, read, compare, and find equivalent amounts of money to \$10.00; make change to \$5.00
- develop strategies for estimating large quantities of objects

Geometry

Students:

- identify and draw representations of points, lines, line segments, angles, horizontal lines, and vertical lines; recognize right angles
- identify and describe lines of symmetry
- explore and identify congruent figures
- identify plane figures as polygons or nonpolygons; identify circles, triangles, rectangles, squares, and other polygons
- recognize, sort, and compare solid shapes and explore faces, edges, and vertices of cubes, rectangular prisms, and cylinders
- investigate the use of a grid and ordered pairs to locate points
- investigate moving figures using slides and/or flips

Data Analysis, Statistics, Probability

Students:

- collect and organize data from a variety of sources; represent data with tally marks, charts/tables, pictographs, line plots, and bar graphs; interpret data
- investigate and describe probability as chance and list possible results of a given situation
- determine whether an event is “equally likely” or “not equally likely” to occur; make predictions based on results of simple experiments

Patterns, Functions, Algebra

Students:

- recognize, describe, predict, extend, and create patterns of objects, pictures, charts of numbers, and simple number patterns
- find missing addends and factors
- multiply by multiples of ten using patterns
- recognize, explain, and use the associative zero, and commutative properties of addition
- recognize, explain, and use the commutative, zero, and one properties of multiplication
- find the rule that completes a chart of factors or products

Problem Solving/Applications

Students:

- use strategies (e.g., build a model, make a chart or table, make a list, make a graph, use a pattern, work backward) and appropriate materials to solve routine and nonroutine problems
- pose and solve problems from everyday life situations
- solve problems using a plan
- identify information needed and not needed to solve problems
- share and explain thinking about how a problem is solved

GRADE 3 SCIENCE

The Fairfax County Elementary Science *Program of Studies* is a hands-on curriculum designed to provide students with a basic understanding of Earth and space, life, and physical science concepts. Students develop a solid base of science knowledge, apply learned knowledge to solve problems, communicate information, use experimental design, and make connections to science in our everyday world. The program materials include units that provide hands-on experiences, science tradebooks, *Windows on Science* videodiscs, and specific web sites correlated to each science unit.

Scientific Investigation, Reasoning, and Logic

Students:

- plan, conduct, and participate in science investigations
- develop questions to form a hypothesis (use if/then statements)
- chart and graph data
- make inferences and draw conclusions
- sequence natural events chronologically
- measure length to the nearest centimeter, mass to the nearest gram, volume to the nearest milliliter or liter, temperature to the nearest degree Celsius, and time to the nearest minute

Earth and Space Science

Students:

- investigate and understand the major components of soil, its origin, and its importance to plants and animals, including humans
- understand that rock, clay, silt, sand, and humus are components of soil
- understand that soil is a natural resource that should be conserved
- understand that soil provides support and nutrients for plants
- investigate and understand basic sequences/cycles occurring in nature
- describe basic natural cycles such as day and night, seasonal changes, phases of the moon (new moon to full moon), and tides (high and low)
- describe plant and animal life cycles

Students:

- investigate and understand different sources of energy
- explain how the sun is the Earth's source of light and heat energy
- describe and define resources as renewable (wood and water) and nonrenewable (fossil fuels--- coal, oil, and natural gas)
- describe natural forms of energy--sunlight, falling water, and wind
- understand that renewable and nonrenewable resources are used to generate electricity

Life Science

Students:

- investigate and understand relationships among organisms in aquatic and terrestrial food chains
- investigate and understand that behavioral and physical adaptations allow animals to respond to life needs

- define the terms *hibernation*, *migration*, *camouflage*, and *mimicry*, and understand the difference between instinct and learned behavior
- describe how animals gather food, find shelter, defend themselves, and rear young
- investigate the characteristics of butterflies, observe and illustrate their life cycle, and understand the relationship between the butterfly and its environment

Physical Science

Students:

- investigate and demonstrate an understanding of the uses of chemical and physical properties
- identify physical and chemical properties of five powders
- perform simple chemical tests to identify powders
- identify unknown substances by comparing observations of their characteristics with properties of known powders
- record observations of experiments in chart form

Students:

- investigate and demonstrate an understanding of the uses for linear, mass, volume, and temperature metric units
- use nonstandard units such as hands, feet, and paper clips to measure length
- use nonstandard units such as water and colored solutions to measure volume
- use nonstandard units such as paper clips and marbles to measure mass
- estimate and measure length in centimeters, meters, and kilometers
- identify real-world applications for metric measurement

**During the school year, students will review the kindergarten through second grade science SOLs in preparation for the third grade science SOL test.

GRADE 3 SOCIAL STUDIES

Social Studies instruction incorporates the four strands of history, geography, civics, and economics. Students learn about the cultures of the ancient civilizations of Egypt, China, Greece, and Rome. The biographies of significant Americans are studied. Students also review concepts and facts previously learned in order to prepare for the SOL test.

History

Students:

- study individuals who have made significant contributions to the United States and its history
- compare and contrast lifestyles of people in ancient civilizations with their own lifestyles
- give examples of inventions, architecture, and art of ancient civilizations
- explain how ancient peoples made contributions that affect the present world
- examine a variety of sources including pictures and artifacts to get information about ancient civilizations
- explain how today's Government of the United States is based on ideas developed in ancient Greece and Rome
- organize and classify information
- demonstrate a basic understanding of chronology
- use a variety of forms to communicate knowledge of historical concepts

Geography

Students:

- use basic geographic terminology including equator, hemispheres, and prime meridian
- use a simple letter-number grid system to locate specific places on a map
- gather information about climate, location, and physical features to describe the ways that people met their basic needs in the ancient civilizations
- describe the ways in which people adapt to their environment
- create a world map by positioning and labeling the seven continents and four oceans

Civics

Students:

- respect the American flag by saying the Pledge of Allegiance
- study individuals who made significant contributions to the United States and worked to defend American principles
- recognize the holidays that honor people who have served to protect America's freedoms
- demonstrate an understanding of personal rights and responsibilities in their own lives
- recognize why government is necessary and explain the purpose of rules and laws
- explain the importance of the basic principles that form the foundation of a republican form of government

Economics

Students:

- learn basic economic concepts that apply to their daily lives including natural, human, and capital resources, economic choice, and opportunity cost
- explain the concepts of specialization and interdependence in the production of goods and services in the ancient civilizations and today