

MOORESTOWN FRIENDS SCHOOL

LOWER SCHOOL CURRICULUM GUIDE

Moorestown Friends School's twin pillars of academic rigor and spiritual and ethical development come to life each day for our Preschool (age 3) through Fourth Grade students. In small classes students participate in an integrated program of reading, writing, language arts, mathematics, social studies and science organized around diverse themes and student-initiated investigations. Learning is hands-on; subjects come alive as students read, write, ask questions, interview experts, conduct experiments, take field trips and share their learning. Students are taught to think critically: to gather complete information, be precise, develop a plan when solving a problem, and shift strategies when needed. Engagement in visual arts, music, physical education, computers, library use, and Spanish complement the academic program.

The Quaker testimonies of simplicity, peace, integrity, community, equality and stewardship are an integral part of every grade and every classroom. Teachers support students in the use of peaceful conflict resolution and peer mediation. Service learning projects take place throughout the year and are both student- and school-initiated.

Through our commitment to academic rigor and spiritual and ethical development, Moorestown Friends Lower School strives to help students develop tough minds and tender hearts.

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LANGUAGE ARTS

The Language Arts curriculum at MFS gives students the tools necessary to be actively literate students. Through a balanced, literature-based approach, which combines systematic teaching of phonics and phonemic awareness (primarily in grades K-1) with the use of authentic children's literature, students learn not only the skills to read and understand a variety of texts, but also develop a lifelong love of reading and writing. Beginning in Kindergarten, students are taught through a workshop format which includes whole-class and small-group lessons as well as independent work time. This format motivates students by giving them choice and the ability to connect their reading and writing with their lives. Through emphasizing independence, students develop the confidence to succeed and continuously stretch themselves as readers and writers. Teachers are able to match the teaching of reading and writing skills to the developmental needs of the students which allows all students to be actively involved in the learning process. Children read, write, speak, and listen by immersing themselves in meaningful experiences and in this way they learn the diverse purposes and a love for developing and using these skills.

READING

Research has revealed that the single most important activity in early childhood for building understandings and skills essential for reading success is reading aloud to children (Wells 1985; Bus, Van Ijzendoorn, & Pellegrini 1995). Our Early Childhood teachers read to children daily and actively engage children in each story read by asking predictive and analytic questions to build children's vocabulary and comprehension of stories. Children talk about the pictures, retell the story, discuss their favorite actions, and request multiple readings. It is the talk that surrounds the reading that gives it power, helping children to bridge what is in the story with their own lives and helping build their love of literature.

A central goal in our reading program during these early years is to develop children's concepts about print. Teachers use a variety of high quality texts to help children distinguish many print features, including the fact that print (rather than pictures) carries the meaning of the story, that the strings of letters between spaces are words and in print correspond to an oral version, and that reading progresses from left to right and top to bottom.

Through a workshop approach to reading beginning in Kindergarten our teachers model real reading behaviors and provide instruction on how to read strategically. Children learn through shared reading experiences, teacher directed lessons, small group guided reading experiences, and partner and individual reading. Over time, students feel confident and excited to pick up a book, knowing they have plenty of tools to read and construct meaning from a text.

Books chosen by the teacher and shared with the class expose children to a variety of genre of children's literature (such as folk tales, historical fiction, poems, plays, biographies). These whole class experiences offer an opportunity to teach comprehension skills through discussions centering on story elements, vocabulary, making inferences, using prior knowledge, summarizing, and asking questions. In addition to whole class instruction, small guided reading groups are used by the teacher to focus on specific reading strategies or fluency practice. Each group's lesson is tailor-fit to meet the needs of those students.

After shared reading experiences and strategy instruction, students practice reading strategies independently with books of their own interest and on their level. For students to truly become proficient, sophisticated readers, they must be given time to read in books that are a perfect fit. This is a time of active reading, when students use the strategies taught during mini-lessons. Each student spends time deeply exploring texts and connecting them to their own lives and the world around them.

During independent reading time the teacher conferences with individuals and may pull small groups to practice a reading strategy and/or to assess student progress. During these conferences the teacher assesses each child. The teacher learns about students' reading interests, observes strategies used while reading, listens for fluency, and assesses comprehension. Through these conferences the teacher determines teaching points for future mini-lessons.

The expectation is to have all of our students read on or above grade level. Children are routinely assessed by their classroom teacher with the help of the Reading Specialist. Using the results of these assessments, a child may be referred by the classroom teacher, with the approval of the Lower School Director, for a reading evaluation by the Reading Specialist. Results of the evaluation, which assesses reading level and gives guidance for instruction, may be used to place a child in a small group for reading instruction. The goal of small group instruction in reading is to provide highly structured, intense reading instruction to children in grade levels K-4. At the lower grade levels, instruction involves training in phonemic awareness and strengthening a child's mastery of sound-symbol relationships. This is combined with the building of a basic sight vocabulary and the reading of many simple phonetically based and sight word oriented readers. In grades 3 and 4, comprehension strategies, vocabulary building and writing skills are added.

SPELLING/WORD WORK

In the early grades spelling goes through different stages, depending on a child's developmental readiness. This spelling progression often goes from random letters, beginning consonant sounds, ending sounds, experimentation with vowels and blending, working toward the final goal of conventional spelling. Children discover the differences and similarities in words through use of big books, charts, word walls, daily news, labels, and other reading opportunities throughout the day.

In Kindergarten and the beginning of First Grade students use "invented spelling". They phonetically sound out and write the letters they hear. Invented spelling is an auditory experience of spelling which becomes increasingly accurate as children's reading skills are learned. Auditory, tactile and visual memory experiences help young children become aware of conventional spelling. It is taught progressively from beginning, ending and middle consonant letters to short and long vowels. These experiences help children make the transition from invented spelling to conventional spelling. Children also work in small groups with games to practice phonics skills and sight words.

In the second half of the First Grade year through Fourth Grade, children use the Rebecca Sitton Spelling Program. The Rebecca Sitton Program is a spelling methodology different from any other. It is a program that teaches spelling skills through word study as well as emphasizing correct spelling in ALL of student writing, not just correct performance on a Friday word list test. It is an approach for which word skills, not word lists, are the centerpiece. Words are emphasized for instruction based on the frequency with which they are used in our language (see Appendix 1). These are called Core Words and form the basis of your child's learning of spelling rules, patterns, letter sounds, prefixes and suffixes. For example, a word could be chosen to illustrate a spelling pattern, to develop synonyms and antonyms, to study words with the same origin, to learn homonyms or analogies, or to study an important spelling rule. Through the Rebecca Sitton program students become active observers of words to understand how they work.

Spelling assessments are given in context, so that children are spelling a missing word from a sentence, not words in isolation. The program also focuses on proper usage of words. For example, students will practice using they're, there, and their correctly. Students are assessed on their ability to spell these words on specific tests and in all their writing. Daily writing is evaluated by random checks.

As the students progress through the program, the responsibility for correct spelling begins to shift to them. They learn to go back and edit their own writing and to look for words that don't "look right." The class develops a group of "no excuses" words that they all will be responsible for spelling correctly in their everyday writing.

Ideas for challenging the competent speller are highlighted in this program as well. Teachers take the more interesting vocabulary words from the student's own writing to study for spelling. The students then build their own list of synonyms and antonyms for this word to use for spelling study. Thematic words connected with social studies, science, and math can be used as "no excuses" words for advanced spellers.

WRITING

Our writing curriculum teaches students to be proficient writers for a number of purposes. Whether students want to tell a story about something important that happened to them, write a letter, make a list, record an observation, or report facts learned from research, students learn to become fluent writers that convey meaning through writing.

Our Early Childhood Program helps children learn the functions of writing. It is important for children to understand that writing is a way of sharing one's ideas and knowledge; it is a method of personal communication and conveys a message that can be read at a later time. Each early childhood classroom environment provides meaningful writing opportunities daily. These opportunities may include having children sign-in each day, providing an observation journal for each student in the science area, and having writing materials be part of the "props" in the dramatic play area. This can include pads for making shopping lists, index cards for writing recipes, or large paper for making posters advertising a class play. Early Childhood teachers ask

children to dictate or write stories to go with their artwork. They provide alphabet letters (for example, charts, magnets, books) as reference tools and display them where children can easily see or reach them.

Through writing workshop beginning in Kindergarten students spend time *daily* writing about things that interest them. Students learn about and experiment with a variety of genres. Students learn the craft of writing through practice, conferring, and studying the craft of other authors. The ultimate goal of a writing workshop is to empower students with the skills and the understanding of purposes of writing that allows them to develop as life-long writers. The writing workshop includes a lesson, a work time with conferring and a sharing time.

Collaboration with peers and teacher is inherent in this model. Process writing focuses primarily on what children want to communicate. Writing Workshop differs from other forms of writing instruction because students are writing individual stories based on their own experiences. Students are also writing at their own ability level. Students are encouraged to use the strategies that we have learned to write at "their personal best". That level is different for every student. As students work independently, the teacher is conferring with authors individually or in small groups to address the needs and strengths of the students.

Throughout the year, students study and write in a variety of genres including personal narratives, poetry, literary essays, journal writing and non fiction writing including procedural writing, letter writing and research reports. In Third and Fourth Grade, students complete two research papers. These reports involve finding information, organizing information into an outline, writing rough and final drafts, and then completing a bibliography. Incorporated within these units of study, we constantly reinforce the Traits of Good Writing: ideas, organization, word choice, sentence fluency, voice, and conventions. Students study the works of published writers as well as examine student writing as they learn about the format of each genre as well as the conventions that make writing strong.

While the writing process looks slightly different at each grade level, students are learning to use the writing process which includes Prewriting, Drafting, Revising, Editing and Publishing (see Appendix 2). In the earliest grades the emphasis is put on Drafting and expressing ideas clearly, and as students become more fluent and sophisticated in their skills, they put more emphasis on the revising and editing part of the process. No matter what age the student is, there is an emphasis on publishing work because we believe that the purpose of writing is communicating with others. Students are motivated and excited by seeing their work in a final form, and they learn the importance of following standard conventions in the process.

Besides sharing their writing with their classmates, teachers and parents, Lower School students have the opportunity to share with students in other grade levels. About five or six times a year students in Kindergarten through Fourth Grade meet in small author sharing groups to read their writing. The groups are comprised of boys and girls from every grade level and the group members remain constant throughout the year.

Much like adult writing circles our author sharing groups provide children with the opportunity to share stories, reports and poems they have written with a small, supportive group. The

students also share illustrations they have created and receive positive and constructive feedback from the group members. After a child has shared a piece of writing, group members frequently comment on particular strategies the author has used when crafting the story (*Your use of dialogue really made me feel like the two characters were arguing; The detailed way you described the setting helped me to clearly picture it in my head*).

In addition to sharing finished pieces of work, the children are encouraged to share story ideas and writing strategies and solicit help and feedback from the group. For example, a child might read a finished story and ask his/her group members for ideas for a good title. Another child might propose several stories ideas and ask the group which idea might make the most interesting story.

HANDWRITING

Beginning in Prekindergarten students learn the basics of proper pencil grip, body awareness, posture and proper letter formation through a formal handwriting program, Handwriting Without Tears. The goal of Handwriting Without Tears is to make legible and fluent handwriting an easy and automatic skill for all students.

The HWT curriculum uses multi-sensory techniques and consistent habits for letter formation to teach handwriting to all students—Preschool through Cursive. In our early childhood classrooms (PS-1) before the students write the letters using pencil/paper, they are building letters with wooden pieces, writing them on a small slate board with small sponges, small pieces of paper towels and small pieces of chalk. In the older grades students learn and practice correct letter formation through easy to use workbooks.

The program's unique methods and materials alleviate problems with:

- Letter formation
- Reversals
- Legibility
- Sentence spacing
- Cursive connections

MATHEMATICS

The mathematical curriculum at MFS motivates and challenges each Preschool through Fourth Grade student to think critically, accurately, and independently to become a successful and confident problem solver not only in their classroom environment but in the world around them. We strive to develop a joy of inquiry and satisfaction of knowing about math and its relationship to everyday living. Through whole group, small group, and individual discussions, explorations, and hands-on activities the children apply their rote and conventional knowledge, flexibly while using manipulatives and literature.

Much of the mathematics learning that takes place in our early childhood classrooms comes from children's play. Children develop geometric concepts as they build with blocks or sort buttons according to their shape. As they work at the water table or sand tray, children develop ideas that

lay the foundation for work with measurement. When they recognize and repeat a pattern of actions or sounds, they beginning to develop concepts that are fundamental of algebraic thinking.

In Prekindergarten students begin more formally exploring mathematical concepts through the Growing with Mathematics program (see Appendices 3-7). The use of this core math program is continued through Fourth Grade. The Growing with Math program ensures that understanding and skills are developed simultaneously. It equips students with a variety of thinking strategies they can use to solve problems effectively and confidently. It supports The National Council for the Teaching of Mathematics (NCTM) standards and the National Association of the Education of Young Children (NAEYC) guidelines. Extensive field testing and in-depth research determined the mathematical content and sequence of the program, as well as the teaching methods it promotes. At each grade level, all components and learning experiences are carefully designed to match students' interests and abilities. Basic fact practice and regular assessment are an important part of the program.

Growing with Mathematics provides our students with a spiraling curriculum, meaning that the depth and complexity of the content taught and learned are increased each subsequent year. For the educator, this means that re-teaching is *minimal* because the content is addressed in more depth and in a more complex fashion with each repetition. For the student, spiraling curriculum means that engagement and interest remain high because the depth and complexity of the subject matter increases each year. Instead of being trampled with redundancy, every year in school remains fresh and new, while building on the foundations laid down the previous year.

SCIENCE AND SOCIAL STUDIES

Social Studies and Science in the Lower School are organized around chosen topics or themes. Students' interests/questions are often the springboard into a particular area of study. These may arise through use of literature, current events, class trips or observations made in their indoor or outdoor environment.

In Social Studies in the early grades we focus on children's immediate social environments (family, classroom, school, town). As students progress through Lower School they broaden their view by studying states, countries, and historical periods (for example, Medieval Times, Colonial Times, the Civil Rights Movement, immigration). We value understanding and respecting people in different settings and involve the children in many service projects that relate to both the school community and the local community. Also, students learn map skills and study geography.

In addition to having Science organized around themes in the classroom (for example, insects, water, the solar system, metamorphosis), students in grades Kindergarten through fourth experience hands-on activities with a science teacher in the Science Laboratory. During Science in both the classroom and in the lab, students are taught to hypothesize, observe, experiment, record data, and form conclusions. In the older grades students work with the science teacher to learn proper lab techniques and to perform experiments. Class discussions help focus what students have observed and relate it to information they have read in reference books.

For a few days each year (three days and two nights), school for Third and Fourth Grade students is held in an outdoor setting. The Third Grade visits Camp Bernie, a YMCA camp situated in the hills of Hunterdon County, at Port Murray, New Jersey. Fourth Grade visits Camp Ockanickon, also a YMCA camp, located in Medford, NJ. While in their “outdoor schools”, students learn first hand about life in the forest, animals and their habitats, orienteering and cooperative problem solving. Additionally, students develop their knowledge of early New Jersey history, natural resources, industries, government, and famous people.

FOREIGN LANGUAGE

Spanish is taught in Prekindergarten through Fourth Grade. It is integrated into the classroom curriculum by a Spanish Teacher with the classroom teacher reinforcing the material. A multisensory language approach which includes songs, movement, art, literature, and role-playing makes learning Spanish fun for the students. It gives the students a feeling of success and it excites them to pursue more in-depth study of foreign languages in the Middle and Upper School years.

TECHNOLOGY

The goal of the technology curriculum is to integrate computer use with curriculum in other areas while developing students' technology skills and knowledge. We recognize the need for continuous change in the technology curriculum as changes occur in technology and its role in society. From Preschool through Fourth Grade, students use computers in their classrooms to reinforce the skills that are important to building a strong foundation for their overall academic development. Computer classes in the lab begin in Kindergarten and remain a requirement through ninth grade. Students focus on a particular area of computer use at each grade level. Among the skills taught are research, web page development, digital media, word processing, spreadsheets, presentations, internet safety and computer ethics. When possible, computer activities take advantage of opportunities to build on material presented in other subjects, from language arts to health education.

THE ARTS

Fundamental to the philosophy of our arts program is the belief that each individual has the desire, ability and right to express himself/herself. An atmosphere is provided in which children come to see themselves as competent, creative individuals whose ideas and artistic expressions are valued by the wider school community, as well as by themselves.

Through our visual arts program, students are exposed to design principles and techniques, the works of professional artists, as well as a multitude of media. Self expression and creative risk taking are stressed. Students are supported in developing ways to communicate openly about one's own artistic choices and in appreciating a variety of other styles and preferences.

Over the course of the Lower School program students learn and apply concepts related to pattern, balance, texture, and color theory. There is concentration in the areas of still life drawing, enlargement of drawings by graphing, painting, graphic design, collage building,

printmaking, illustrating written material, three dimensional sculpture, clay, and weaving. Whenever possible, art class is coordinated with the current theme of the classroom.

The music program in the Lower School is based on developmentally appropriate experiences at each grade level. Fundamental skills of singing, movement, listening, note reading, and playing instruments are used to develop knowledge and enjoyment of music and performance. Students are actively involved in music experiences through playing lummi sticks, rhythm instruments, xylophones, and recorders. All lower school students participate in the Winter Concert. Students learn the importance of cooperation and performance techniques as they are encouraged and supported in classroom musical productions and, for older children, the Spring Concert.

In all grades (PS-4) students sing, listen to many types of music, move to music, and increase their music vocabulary. Particular emphasis is placed on developing a sense of pitch and tone quality in singing and understanding concepts of musical differences such as tempo, pitch, dynamics, and melodic movement. As students progress through the program, they learn to read the letter names of the notes in the treble clef and use that knowledge to play the xylophones.

Second Grade students have a special violin class lesson once a week and practice with their class teacher every day. The purpose of the program, using the aural Suzuki approach which focuses on the enrichment of the human spirit, is to reinforce the listening, coordination, cooperation and study skills that are essential to any learning.

Third and Fourth Grade students use their understanding of note reading to learn to play the recorder. There is a concentrated study of instruments of the orchestra in Third Grade. These students learn about the four families of instruments and how sound is produced and changed for each instrument. Fourth Graders look at how music has evolved and how it reflects the culture and events of the time.

LIBRARY

The library program ensures that students are effective users of ideas and information in the development of lifelong learning skills. The library program makes every effort to integrate library skills with the classroom instruction and activities. Some skills are unique to the library setting and are taught by the librarian.

The librarian spends considerable time reading the classics and new literature to children. A variety of books provides the opportunity for the children to hear the best in children's literature, covering stories from diverse backgrounds and experiences. In the early grades storytelling felt pictures, puppets, stuffed animals, and other play materials are often used for literacy and sorting activities. Younger students are introduced to the proper handling and care of books and are introduced to the understanding that books are arranged in specific ways on library shelves. They are also introduced to the identification of simple bibliographic information in books, such as title, authors and illustrators. Classes explore the concepts of fiction and nonfiction, sequels and variations, and some literary genres.

Beginning in Kindergarten children may check out books to read for their own pleasure.

Students' understanding of the different sections of library is reinforced as they browse and select library books from the Lower School section of the library with guidance that expands their awareness of distinctions of format, content, authors, illustrators, and genres. As students progress through the program classes include introductions to the Dewey Decimal system of classification and the study of essential information literacy skills with print and electronic reference resources, including selected online subscription databases, age appropriate search engines, and the library's online catalog. Students are also introduced to purposes and formats for the making bibliographies and bibliographic citations.

PHYSICAL EDUCATION

Our goal of our Lower School PE program is to assist each child in developing attitudes, skills, and knowledge of human movement that will result in a lifetime of participation in physical activity. Lessons are designed to provide maximum participation for all students, increased practice of the focus skill, and a high success rate for each student. The teacher serves as a facilitator, providing the initial task and then assisting individuals as needed.

Units focusing on the development of specific skill are spread throughout the year. These skills include throwing, catching, dribbling, kicking, and volleying. Adventure activity units give students the opportunity to demonstrate teamwork, problem solving skills, as well as using equipment in unconventional ways. Team sports, such as basketball, soccer, and volleyball, are introduced in second, third and Fourth Grades. Also included are cooperative games, partner games, and large group games.

Students work on all aspects of physical fitness including increasing cardiovascular efficiency, flexibility, agility, balance and strength/endurance. Students develop their ability to follow directions, distinguish left from right, and identify major body parts (including bone and muscle groups) and how they relate to movement.

THE EXAMINED LIFE PROGRAM FOR SPIRITUAL AND ETHICAL DEVELOPMENT

Children at Moorestown Friends School enter a community of spiritual and ethical learning rooted in Quaker belief and practice. This gives rise to the school's philosophy and, therefore its attitude toward education and young people as one of recognizing and encouraging the spiritual dimension of children's lives. Helping children understand that they possess a spiritual life and asking them to engage in it as a guide is as fundamental to a transformative Quaker education as academic excellence.

Our goal for all students is to go out into the world as resilient, compassionate problem solvers enlightened by spiritual discernment, able to draw on the power of their intellect to make moral and ethical decisions. From the earliest ages through graduation children participate in our program for spiritual and ethical education, "The Examined Life", drawn from Socrates' axiom: "The unexamined life is not worth living".

"The Examined life" program is embedded in the Quaker belief in the "Inward Light", that there is a measure of the Divine in each person that can be directly accessed for understanding and guidance in how to live. A Quaker school does not aim to create Quakers, but rather to help children and young people become aware of that spiritual presence in all of us. The school believes that the religious tradition of each student is strengthened by the understanding of Quaker history, faith, and practice. Lee Quinby, a Quaker educator writing in a State College Friends School journal, states, "When we do our job well, students leave Friends Schools as more faithful Protestants, more devout Roman Catholics, more pious Jews, more observant Muslims, more spiritually aware Buddhists—and more committed Friends." The "Inward Light" gives rise to the testimonies that reveal the Quaker ideals for living (also embraced by many people of good will). The testimonies of simplicity, peace, integrity, community, equality, and stewardship provide the basis for Moorestown Friends School's spiritual and ethical education: "The Examined Life".

There are four foundations of "The Examined Life."

OPENNESS TO THE SPIRIT

How is openness to the spirit fostered in Lower School? We endeavor to give children the ability to recognize the value of inner experience and the individual connection to something greater than themselves. This is done in individual Quaker Education classes and through opportunities out of the classroom setting.

- The Meeting for Worship experience for children Kindergarten through Fourth Grade is central to this understanding. It offers a silent time for prayer, meditation, reflection and contemplation of one's faith traditions and important thoughts. The silence works on naturally restless young children to give strength to a sense of community and peace as well as focus. Children are encouraged to speak from their hearts if so moved. Practice in the use of silence and support for the value of Meeting for Worship is conducted in classes.

- Fourth Graders are trained to provide Meeting for Worship leadership by setting the tone for the Meeting, greeting at the doors, closing worship and giving occasional openings.
- Third Graders write reflective questions (called queries) to use as Meeting for Worship openings when they become Fourth Grade elders.
- Students in all classrooms from Pre School through Fourth Grade begin to develop skills in using the silence to nurture their own thoughts and reflection as a tool to cope with a complex world. They are given practice through simple classroom meditation techniques, drawing to music, walking a real labyrinth and sitting still!
- Children are ready to appreciate the natural world and come with a sense of wonder about everything around them. This is fostered by reading about and observing nature.
- Children delight in recognizing and appreciating various religious experiences, especially through holidays in all classes. Second Graders learn more extensively about Quaker history, belief and meetinghouses.
- By encouraging children to engage in actions and words of compassion and empathy we strive for them to see the worth in all. Activities such as a “quilt” of kind actions and kindness coupons in Pre-Kindergarten through Third Grade.
- Appreciation for diversity in all grades is fostered by a variety of children’s literature representing many cultures and heritages. Second Grade focuses on a bias awareness unit.
- Lower school children enjoy a variety of Service Learning programs offered throughout the year to develop the desire to serve others through meaningful and developmentally appropriate projects. Lessons on the need for service and effective methods of support are given. Children enthusiastically participate in All-school Thanksgiving activities, Martin Luther King, Jr. Day of Service and March of Dimes. Lower school projects include UNICEF collections, Box Tops for Education for a school in Camden; class initiated animal adoptions and more. Fourth Graders develop leadership by volunteering for a weekly Service Club that supports all these efforts.

ETHICS

At the heart of ethics is a series of questions that can lead students, even at young ages, to reflect on their actions: What is my relationship to others? How should I treat others? What am I responsible for? What is the impact of my choices of behavior?

- These ethical concepts of “doing the right thing” are taught throughout Lower School through the “I Care Cat” and his basic rules for getting along with each other from Pre School through Second Grade. These rules mature into “Peace Rules” and “Rules for Fighting Fair” for Third and Fourth Grade.
- Feelings awareness and understanding, especially of anger, are taught in every grade level through role play, literature, drawing, writing, games and discussion.
- Skills for peaceful resolving of conflict are taught through modeling and coaching, especially in the block corner in Pre-School! In other grades practice is given through role play, mediation, direct teaching and teacher support. A wide variety of relevant children’s literature is used as examples for understanding and solving conflicts. Third and Fourth Grade learn the wonderful visual concept of a conflict escalator. They further examine the causes of conflict and learn preventive measures.
- Social competency skills are taught and reinforced at every level. Early childhood classes are encouraged to examine and practice what it means to be a good friend. As

children grow and mature we ask them to take on more responsibility for their actions toward each other.

- We encourage students to reflect on moral issues such as integrity, equality, and justice even before they may understand the words. In the early grades simple stories and activities offer examples of ethical choices and the costs of poor ones.
- Third Graders study ethics throughout the year learning how conflict, its management, choices of behavior and taking a stand have an effect on community. They are asked to connect issues that arise from class and literature to basic ethical concepts.
- Fourth Grade examines the idea of social responsibility both in their roles as leaders in the Lower School and as they look forward to Middle School. We show them the connection of ethical use of power with social responsibility to treat each other with dignity. Students examine the messages our culture gives to young people and the roots of socially demeaning behavior. Interactive activities, role play and discussion give students practical tools to speak out against injustice.

CRITICAL THINKING

What kinds of knowledge and skills will our children need as our world continually changes and becomes more complex? Children's natural curiosity and interest in the world are developed and enhanced by the application of critical thinking skills to solve problems. We teach them to become skillful observers, gatherers of complete data, judges of the quality of information, accurate and precise problem solvers. They learn to understand their own thinking process so that they can solve as yet unknown problems in the future! Children's understanding of the link between ethics and critical thinking is a necessary component. Academic knowledge applied to the world without the tempering of ethical understanding can be as damaging as empathetic action without careful thought.

- A discreet cognitive skills training program called Instrumental Enrichment is taught to children from Second to Fourth Grade by the classroom teacher.
- Children observe the vocabulary of these thinking skills daily and apply the terms to many learning situations from Preschool through Fourth Grade.
- The bridging of the skills to other curricular areas and everyday life is a vital part of helping children understand and apply those skills on a daily basis.
- We ask children to employ careful thought to the identification and understanding of emotions and how behavior affects them. In the earliest grades asking the child to "look at his/her friend's face" is the beginning of using evidence to form a hypothesis in relation to emotion. As students mature we ask them to seek greater understanding and apply it to another's point of view. In First through Fourth Grade this is done through literature, games, and discussion.
- Children are naturally curious, so our goal for them is to be open to continuous learning. We ask them to question evidence, look for truth and relevance, to support comments and opinions by citing sources. Their questions often give rise to further questions to be explained or researched.

RESILIENCE

The ability to bounce back from disappointment, uncertainty and tragedy is a skill essential to living a full life. How can we help children become resourceful and develop the habit of solving their own problems? When and how should they be responsible for themselves? In a culture that often presents fear and materialism in large doses to our children, how do we sort out the appropriate and character building coping skills? Much research has found strategies to develop resilience knowing that these involve time, effort and strong emotions. Children are offered a variety of approaches to build resilience within a caring and nurturing community.

- Helping others is an effective method of developing resilience. Lower school children of all ages are offered appropriate service learning activities in the classroom or at all-school events such as Martin Luther King, Jr. Service Day. These provide opportunities for connections to other helpers and give children a sense of being capable. We focus on helpers during times of disaster as a primary method of teaching response to stressful world events that concern our students.
- We help children make positive connections with teachers, staff, administration, classmates, and other students in appropriate ways. Classrooms are visited by community members ranging from the Head of School to Maintenance staff. There are opportunities to engage with parents and grandparents as helpers, guest speakers, chaperones and at school events such as Grandparent Days. How does this build resilience?
- Group activities with the “big kids” from Middle and Upper School provide another type of positive connection through classroom occasions, performances or sharing learning. All school events like the Thanksgiving Happening, a morning of gratitude and community building exercises in multi-age groups Pre Kindergarten through Twelfth grade is a beloved tradition at MFS. Upper School teacher aides are a favorite part of children’s Lower School experience.
- Conflict management and social competency skills are modeled and taught at every level through literature, discussion, role play, and interactive activities.
- Children are given opportunities to make choices, limited to areas they can control to foster a sense of accomplishment and self-confidence. Sometimes students face disappointments in their independent work, and we work with students to put some of the small ones in perspective.
- Stories of well known resilient people or characters in literature who have coped with adversity are presented at various levels.
- Children are taught to use the Meeting for Worship as a safe place to consider problems, sadness or anxieties and speak about them if moved, as well as joyful events such as lost teeth or parents returning from trips!
- We nurture children’s sense of themselves through affirmation activities that allow practice in appreciating each other’s work and worth in circle discussions or when writing.

EXTRACURRICULAR PROGRAMS

EXTENDED DAY

For an added fee, Moorestown Friends School provides before school care from 7:15-8:10 A.M. and after school care until 5:45 P.M. Extended Day offers creative and caring supervision for children before and after the regular school day. The Extended Day teachers use a variety of engaging indoor activities. The group also makes full use of the playground, as well as other school resources. A light snack is provided in the afternoon session.

AFTER SCHOOL PROGRAM AND LESSONS

In addition to Extended Day a variety of after-school clubs are offered for students in Kindergarten through Fourth Grade at an additional cost. These programs have included computer activities, drama, environmental studies, cooking, field hockey, lacrosse, board games and science.

Tutoring and private lessons for instrumental instruction are also available before and after school. Please see the Lower School Director for more information.

APPENDIX 1: WORD BANK OF 500 HIGH FREQUENCY WRITING WORDS

The words in the following word bank are listed in the order of their frequency of use in everyday writing. Since **the** is the most frequently used word in our language, its number is one in the word bank. The first 25 words are used in 33% of everyday writing and the first 100 words appear in 50% of adult and student writing.

CORE WORDS

The Core Words in the Rebecca Sitton program are divided by grade levels. They are the seeds from which this spelling program grows and develops. They provide a foundation for each grade level to begin spelling exploration and are a springboard for the study of hundreds of additional words.

- Grade 1 word frequencies 1-30
- Grade 2 word frequencies 31-130
- Grade 3 word frequencies 131-265
- Grade 4 word frequencies 266-400

“NO EXCUSES” WORDS

"No Excuses" Words are those which students are held accountable. They are expected to spell them correctly in all of their everyday writing. They are taken from the list of core words. Below are the groups of words which we hope most children will master by the end of his/her grade level. Please help your child to spell these words correctly in their everyday writing. Not all classes or all children will have the same number of priority words at any given time. Spelling is both a developmental and highly individualized skill so teachers attempt to meet the needs of their classes within the framework of the program.

- Grade 1 words 1-21
- Grade 2 words 1-36
- Grade 3 words 1-60
- Grade 4 words 1-100

1 the	13 was	25 have	37 there
2 of	14 on	26 or	38 can
3 and	15 are	27 by	39 an
4 a	16 as	28 one	40 your
5 to	17 with	29 had	41 which
6 in	18 his	30 not	42 their
7 is	19 they	31 but	43 said
8 you	20 at	32 what	44 if
9 that	21 be	33 all	45 do
10 it	22 this	34 were	46 will
11 he	23 from	35 when	47 each
12 for	24 I	36 we	48 about

49 how	107 new	165 read	223 hand
50 up	108 write	166 last	224 high
51 out	109 our	167 never	225 year
52 them	110 me	168 us	226 mother
53 then	111 man	169 left	227 light
54 she	112 too	170 end	228 country
55 many	113 any	171 along	229 father
56 some	114 day	172 while	230 let
57 so	115 same	173 might	231 night
58 these	116 right	174 next	232 picture
59 would	117 look	175 sound	233 being
60 other	118 think	176 below	234 study
61 into	119 also	177 saw	235 second
62 has	120 around	178 something	236 soon
63 more	121 another	179 thought	237 story
64 her	122 came	180 both	238 since
65 two	123 come	181 few	239 white
66 like	124 work	182 those	240 ever
67 him	125 three	183 always	241 paper
68 see	126 must	184 show	242 hard
69 time	127 because	185 large	243 near
70 could	128 does	186 often	244 sentence
71 no	129 part	187 together	245 better
72 make	130 even	188 asked	246 best
73 than	131 place	189 house	247 across
74 first	132 well	190 don't	248 during
75 been	133 such	191 world	249 today
76 its	134 here	192 going	250 however
77 who	135 take	193 want	251 sure
78 now	136 why	194 school	252 knew
79 people	137 help	195 important	253 it's
80 my	138 put	196 until	254 try
81 made	139 different	197 form	255 told
82 over	140 away	198 food	256 young
83 did	141 again	199 keep	257 sun
84 down	142 off	200 children	258 thing
85 only	143 went	201 feet	259 whole
86 way	144 old	202 land	260 hear
87 find	145 number	203 side	261 example
88 use	146 great	204 without	262 heard
89 may	147 tell	205 boy	263 several
90 water	148 men	206 once	264 change
91 long	149 say	207 animal	265 answer
92 little	150 small	208 life	266 room
93 very	151 every	209 enough	267 sea
94 after	152 found	210 took	268 against
95 words	153 still	211 four	269 top
96 called	154 between	212 head	270 turned
97 just	155 mane	213 above	271 learn
98 where	156 should	214 kind	272 point
99 most	157 home	215 began	273 city
100 know	158 big	216 almost	274 play
101 get	159 give	217 live	275 toward
102 through	160 air	218 page	276 five
103 back	161 line	219 got	277 himself
104 much	162 set	220 earth	278 usually
105 go	163 own	221 need	279 money
106 good	164 under	222 far	280 seen

281 didn't	339 yet	397 am	455 simple
282 car	340 less	398 talk	456 snow
283 morning	341 wind	399 whether	457 rain
284 I'm	342 behind	400 fine	458 suddenly
285 body	343 cannot	401 round	459 easy
286 upon	344 letter	402 dark	460 leaves
287 family	345 among	403 past	461 lay
288 later	346 able	404 ball	462 size
289 turn	347 dog	405 girl	463 wild
290 move	348 shown	406 road	464 weather
291 face	349 mean	407 blue	465 miss
292 door	350 English	408 instead	466 pattern
293 cut	351 rest	409 either	467 sky
294 done	352 perhaps	410 held	468 walked
295 group	353 certain	411 already	469 main
296 true	354 six	412 warm	470 someone
297 half	355 feel	413 gone	471 center
298 red	356 fire	414 finally	472 field
299 fish	357 ready	415 summer	473 stay
300 plants	358 green	416 understand	474 itself
301 living	359 yes	417 moon	475 boat
302 black	360 built	418 animals	476 question
303 eat	361 special	419 mind	477 wide
304 short	362 ran	420 outside	478 least
305 United States	363 full	421 power	479 tiny
306 run	364 town	422 problem	480 hour
307 book	365 complete	423 longer	481 happened
308 gave	366 oh	424 winter	482 foot
309 order	367 person	425 deep	483 care
310 open	368 hot	426 heavy	484 low
311 ground	369 anything	427 carefully	485 else
312 cold	370 hold	428 follow	486 gold
313 really	371 state	429 beautiful	487 build
314 table	372 list	430 everyone	488 glass
315 remember	373 stood	431 leave	489 rock
316 tree	374 hundred	432 everything	490 tall
317 course	375 ten	433 game	491 alone
318 front	376 fast	434 system	492 bottom
319 American	377 felt	435 bring	493 check
320 space	378 kept	436 watch	494 reading
321 inside	379 notice	437 shell	495 fall
322 ago	380 can't	438 dry	496 poor
323 sad	381 strong	439 within	497 map
324 early	382 voice	440 floor	498 friend
325 I'll	383 probably	441 ice	499 language
326 learned	384 area	442 ship	500 job
327 brought	385 horse	443 themselves	
328 close	386 matter	444 begin	
329 nothing	387 stand	445 fact	
330 though	388 box	446 third	
331 idea	389 start	447 quite	
332 before	390 that's	448 carry	
333 lived	391 class	449 distance	
334 became	392 piece	450 although	
335 add	393 surface	451 sat	
336 become	394 river	452 possible	
337 grow	395 common	453 heart	
338 draw	396 stop	454 real	

APPENDIX 2: THE WRITING PROCESS

Stage	Description	Strategies
Prewrite	The writer thinks about the subject. He determines the general purpose, audience and appropriate format. The writer selects a topic and organizes his thoughts before he begins to write.	Drawing Talking Brainstorming Graphic organizers Research Semantic webs Listing Using a variety of resources for ideas Outlining
Draft	The process of putting ideas down on paper. The focus is on content not mechanics.	Taking notes Playing with ideas Expanding an outline Organizing thoughts into paragraphs
Revise	The process of refining the piece of writing. The writer clarifies his writing. He adds to, reorganizes or eliminates portions of the piece. The writer shares his work and gets input from others.	Peer editing Read aloud Conferencing Mediative Questions Paraphrasing Rest & revisit
Edit	Mechanical, grammatical and spelling errors are fixed in the writing piece.	Read aloud Use a cover sheet and view line-by-line Editing checklists Get feedback from others
Publish	The writing piece is prepared in final form. The writer shares his writing with others.	Read aloud Read to a group Display Print Publish in Treasures

APPENDIX 3: GROWING WITH MATHEMATICS PREKINDERGARTEN

Growing with Mathematics Prekindergarten program reflects current cognitive and social theories of early mathematics learning. In particular, the program views children as active learners who construct their own mathematical understanding through interacting with their environment and their peers.

Key references for Pre-K mathematics include:

- National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM). *Early Childhood Mathematics: Promoting Good Beginnings*. (2002)
- Copley, J. V. (ed.) *Mathematics in the Early Years*. (1999)

Mathematical Content

The National Council of Teachers of Mathematics (NCTM) has identified five content strands that form the basis of an exemplary mathematics curriculum. These strands are interrelated, with number being present throughout.

- **Numbers and Operations**

A major focus of number work at Pre-K is to help children learn to count accurately and with understanding. They also begin to compare and order numbers, using concrete materials and then symbols. Number concepts are developed in the Pre-K program through activities that involve:

- Estimating and counting objects, both concrete and pictorial
- Working with different representations of numbers
- Comparing and ordering groups of concrete objects
- Recognizing and beginning to write number symbols
- Using the language of ordinal numbers
- Joining numbers together and breaking numbers apart

- **Algebra**

At Pre-K, children begin to develop algebraic thinking through activities that involve:

- Sorting and classifying concrete objects or pictures
- Identifying, describing, creating, copying, and extending patterns of sounds, actions, or objects
- Writing number symbols

- **Geometry**

At Pre-K, geometry is an intuitive part of mathematics for young children, who are naturally interested in the shape, size, and position of objects in the world around them. Geometric concepts and related language are developed through children:

- Describing the relative position of objects in the real world and in pictures
- Investigating the characteristics and properties of 3-D solids and 2-D shapes, and describing their attributes; for example, a triangle has three sides
- Hearing and beginning to use formal names for 3-D and 2-D shapes.

- **Measurement**

At Pre-K, the focus is on helping children identify, describe, and compare measurable attributes such as length, size, weight, and capacity. Activities that help develop concepts related to measurement and measuring time include:

- Describing measurable attributes; for example, using the words *long and short* to describe length
- Identifying which object has more or less of a given attribute
- Ordering objects according to a given attribute
- Ordering events in a story or everyday situation
- Working with a calendar that shows the days of the school week

- **Data Analysis and Probability**

Activities at Pre-K that contribute to the development of data analysis skills include:

- Classifying objects as the *same* or *different*, according to an attribute such as color, size, or shape
- Sorting concrete or pictorial objects
- Interpreting simple graphs and charts such as the pictorial graphs in *Who Has More?* and *Grandma's Special Toy Box*
- Making simple graphs and charts; for example, by sorting concrete objects on a graphing mat, or by placing stickers on a weather chart

APPENDIX 4: GROWING WITH MATHEMATICS KINDERGARTEN

A special feature of the *Growing with Mathematics* program is the emphasis on asking questions that encourage students to think critically. Even at Kindergarten, children are challenged to justify their answers, describing how they arrived at an answer, or why they gave a particular answer.

Mathematical Content

The National Council of Teachers of Mathematics (NCTM) has identified five content strands that form the basis of an exemplary mathematics curriculum. These strands are interrelated, with number being present throughout.

- **Number and Operations**

A major focus of number work in Kindergarten is helping children learn to count accurately and with understanding. They also begin to compare and order numbers, using concrete materials and then symbols. Number concepts are developed in the Kindergarten program through activities that involve:

- Estimating and counting objects, both concrete and pictorial
- Working with different representations of numbers
- Comparing and ordering groups of concrete objects
- Recognizing and beginning to write number symbols
- Using the language of ordinal numbers
- Joining numbers together and breaking numbers apart
- Making equal groups and sharing

- **Algebra**

At Kindergarten, children begin to develop algebraic thinking through activities that involve:

- Sorting and classifying concrete objects or pictures
- Identifying, describing, creating, copying, and extending patterns of sounds, actions, or objects
- Determining the sorting "rule"
- Examining qualitative and quantitative change
- Using objects, pictures, and symbols to represent number

- **Geometry**

At Kindergarten, geometry is an intuitive part of mathematics for young children, who are naturally interested in the shape, size, and position of objects in the world around them. Geometric concepts and related language are developed through children:

- Describing the relative position of objects in the real world and in pictures
- Investigating the characteristics and properties of 3-D solids and 2-D shapes, and describing their attributes; for example, a triangle has three sides
- Hearing and beginning to use formal names for 3-D and 2-D shapes.

- **Measurement**

At Kindergarten, the focus is on helping children identify, describe, and compare measurable attributes such as length, size, weight, and capacity. Activities that help develop concepts related to measurement and measuring time include:

- Describing measurable attributes; for example, using the words *long* and *short* to describe length
- Identifying which object has more or less of a given attribute
- Ordering objects according to a given attribute
- Measuring length using cubes or blocks placed end to end
- Determining the number of units needed to cover an area
- Ordering events in a story or everyday situation
- Working with a calendar that shows the days of the school week and months of the year

- **Data Analysis and Probability**

Activities at Kindergarten that contribute to the development of data analysis skills include:

- Classifying objects as the *same* or *different*, according to an attribute such as color, size, or shape
- Sorting concrete or pictorial objects
- Interpreting simple graphs and charts
- Making simple graphs and charts; for example, by sorting concrete objects on a graphing mat, answering yes/no questions on a clothespin graph, making a weather graph, and making a glyph

APPENDIX 5: GROWING WITH MATHEMATICS GRADE ONE

Building Concepts

A major focus of the first-grade program is on developing early mathematical language. Building on developing everyday experiences, the program provides a range of activities that ensure children are constantly discussing, representing, and reasoning mathematically. In *Growing with Mathematics*, language development is viewed as a spiral. The child's own language is the starting point from which mathematical language and symbolic language grow.

Facts and Basic Skills

Facts and skills continue to be an important part of any mathematics program. Some of the most important skills for children to learn at First Grade are the number facts for addition and subtraction. Although children work with combinations of numbers to 18, they are not expected to master all the facts by the end of the year.

Mathematical Content

The National Council of Teachers of Mathematics (NCTM) has identified five content strands that form the basis of an exemplary mathematics curriculum. These strands are interrelated, with number being present throughout.

- **Numbers and Operations**

In first-grade, the focus is on reading and writing two-digit numbers and the introduction of the place-value system associated with these numbers. Number and operation concepts and skills are developed in the first-grade program through activities that involve:

- Counting in a variety of ways
- Grouping objects into tens and describing the two-digit number that is represented
- Reading and writing two-digit numbers
- Comparing and ordering two-digit numbers by focusing on tens and ones or by using a hundred chart
- Identifying and demonstrating how to find fractions involving halves and fourths
- Using counters on a part-part-total mat to demonstrate and record the link between addition and subtraction
- Verbalizing and using number-fact strategies
- Practicing number facts through games using Jumbo Pocket Cubes, target mats, and other materials

- **Algebra**

At First Grade, children extend their algebraic thinking and begin to use symbols to record ideas. Algebraic ideas are developed through activities that involve:

- Sorting and classifying objects using a variety of attributes
- Describing patterns, identifying the repeat in a pattern, and then using numbers to record each repetition
- Using part-part-total mats and function machines to help establish the inverse relationship between addition and subtraction
- Investigating the idea of balance between two sides of a number sentence and writing the = sign to express the relationship
- Describing qualitative and quantitative change

- **Geometry**

Ideas related to geometry are developed through activities that involve:

- Using classroom materials to describe, analyze, compare, and contrast 3-D and 2-D shapes
- Sorting and classifying shapes using a range of criteria generated by the children
- Following and giving directions for a specific task
- Cutting a familiar shape into two or three pieces and rearranging the pieces into another shape
- Exploring symmetry through the use of resources such as pattern blocks and drawings made by the children

- **Measurement**

In First Grade, children are still developing basic concepts related to time, length, weight, capacity, area, and volume. Measurement ideas are developed through activities that involve:

- Arranging familiar events in a logical sequence in time
- Using a geared clock to describe the actions of the hands and read time on the hour and half hour
- Estimating and comparing with nonstandard identical units of length, weight, and capacity
- Building and using an "inch tile ruler" to measure with standard units of length

- **Data Analysis and Probability**

Data Analysis is a general term that covers the processes of collecting, describing, interpreting, summarizing, and graphing information, and creating and answering related questions. Activities at First Grade that contribute to the development of data skills and probability involve:

- Sorting, classifying, and organizing data in an appropriate representation
- Constructing a tally chart, object or block graph, simple bar graph, or picture graph
- Analyzing and drawing conclusions from the data representations with individual or grouped data
- Discussing the likelihood of certain outcomes occurring for familiar events

APPENDIX 6: GROWING WITH MATHEMATICS GRADE TWO

Building Concepts

A major focus of the second-grade program is on developing mathematical language. Building on everyday experiences, the program provides a range of activities that ensure children are constantly discussing, representing, and reasoning mathematically. In *Growing with Mathematics*, language development is viewed as a spiral. The child's everyday language is the starting point from which mathematical language and symbolic language grow.

Facts and Basic Skills

Facts and skills continue to be an important part of any mathematics program. At Second Grade, adding and subtracting two-digit numbers and mastering and practicing basic number facts are the major focuses of the number work.

Mathematical Content

The National Council of Teachers of Mathematics (NCTM) has identified five content strands that form the basis of an exemplary mathematics curriculum. The content in *Growing with Mathematics* incorporates all five content standards in its program for grade 2, with emphasis that is aligned to the recommendations by NCTM.

- **Numbers and Operations**

In Second Grade, number work is extended to include three-digit numbers and special attention is given to numbers with a 0 or 1 in the tens place. There is greater emphasis on using place value to help order, add, and subtract numbers. Number and operation concepts and skills are developed in the second-grade program through activities that involve:

- Skip counting
- Using place-value models to represent three-digit numbers as hundreds, tens, and ones
- Reading, writing, comparing, and ordering numbers (to 1,000)
- Adding and subtracting two-digit and then three-digit numbers
- Multiplying and dividing numbers
- Working with fractions
- Using number-fact strategies
- Practicing number facts through games using Jumbo Pocket Cubes, target mats, and other materials

- **Algebra**

At Second Grade, children continue to explore patterns and relationships and to investigate general principles and properties of operations. Algebraic ideas are developed through activities that involve:

- Recognizing, describing, analyzing, and extending patterns that repeat or grow, and using numbers to record the elements in those patterns
- Using objects, pictures, or symbols to model situations that involve addition, subtraction, multiplication, or division
- Using a function machine to reinforce the inverse relationship between addition and subtraction
- Using joining and sharing mats to establish the inverse relationship between multiplication and division
- Describing qualitative and quantitative change

- **Geometry**

Ideas related to geometry are developed through activities that involve:

- Describing, analyzing, comparing, and drawing 3-D and 2-D shapes
- Sorting and classifying shapes using increasingly sophisticated criteria
- Putting together and taking apart shapes
- Recognizing and making slides, flips, turns, and exploring symmetry
- Describing position and location, and giving related directions

- **Measurement**

In Second Grade, children work with standard units of weight and capacity, such as the pound and the pint, and with other units of length, both customary and metric. They continue to use nonstandard units as they begin to explore the concepts of area and volume. Measurement ideas are developed through activities that involve:

- Reading on-the-hour and half-hour times on an analog or digital clock, and calculating elapsed time
- Estimating, measuring, and comparing the length, weight, and capacity of objects, using nonstandard or standard units
- Relating units, such as the inch and the foot, or the pint and the quart
- Counting the square tiles it takes to cover an area or the cubes it takes to fill a container

- **Data Analysis and Probability**

Data Analysis is a general term that covers the processes of collecting, describing, interpreting, summarizing, and graphing information, and creating and answering related questions. Activities at Second Grade that contribute to the development of data skills and probability involve:

- Sorting, classifying, and organizing data in an appropriate representation
- Constructing a tally chart, object or block graph, simple bar graph, or picture graph
- Analyzing and drawing conclusions from the data representations with individual or grouped data
- Discussing the likelihood of certain outcomes occurring for familiar events

APPENDIX 7: GROWING WITH MATHEMATICS GRADE 3

Building Concepts

The third-grade program focuses on understanding and facility with two- and three-digit numbers

Facts and Basic Skills

In third-grade, students are introduced to the meanings of and relationship between multiplication and division. Students develop a strong conceptual understanding of multiplication and division as they model problems with pictures, arrays, and manipulatives.

Mathematical Content

In its document *Principles and Standards for School Mathematics*, the National Council of Teachers of Mathematics (NCTM) has identified the mathematical content that should be part of every mathematics curriculum. The content in *Growing with Mathematics* incorporates all five content standards in its program for grade three.

- **Number and Operations**
By grade three, children have had many experiences and developed confidence with adding whole numbers, and counting strategies. In Third Grade the focus builds on their understanding of addition to introduce multiplication. At this level their concept of fractions is also strengthened and deepened as they develop strategies for comparing fractions through the use of benchmarks.
- **Algebra**
In grade 3, algebraic reasoning builds on children's many experiences with number and properties of number. At this level, children describe, extend, and make generalizations about geometric and numeric patterns. They also begin to use mathematical models such as graphs, tables, and objects to represent and understand mathematical situations.
- **Geometry**
The expectations related to geometry for this level are that children be able to describe the properties of both two- and three-dimensional shapes with more precise language than in earlier grades and be able to classify shapes in a variety of ways according to their common characteristics. In *Growing with Mathematics* at this level, students build, draw, model, trace, measure, and construct geometric shapes as they investigate concepts that include congruence, similarity, symmetry, location, and transformation.
- **Measurement**
To strengthen and deepen their understanding of all types of measurement, children at this level need frequent opportunities to develop their measuring skills by actually measuring a variety of objects. They will also develop better estimation skills related to measurements. Using customary and metric units of measurement will help develop familiarity and flexibility with these two important measuring systems. Children at this level will be able to measure area and perimeter of a variety of regular and irregular shapes. These measurement skills are developed through many hands-on activities and investigations. In addition to measuring length, area, volume, and weight, children do activities related to time and money.
- **Data Analysis and Probability**
At the Third Grade level, students represent data using tables and many different types of graphs. Through discussion of their graphs, students begin to make and justify conclusions and make predictions based on the data. Also at the Third Grade level, students consider ideas of chance through experiments using dice and spinners and consider fairness of games.

APPENDIX 8: GROWING WITH MATHEMATICS GRADE 4

Building Concepts

The central themes at the fourth-grade level are multiplicative reasoning, equivalence, and computational fluency. The fourth-grade program extends the focus on computational fluency from Third Grade with the introduction of the standard algorithms for multiplication and division. Also at this level, students are introduced to proportional reasoning as they explore similarity, congruence, and scale drawings.

Facts and Basic Skills

At this level, understanding is also emphasized as students are introduced to the algorithms as efficient methods for doing computations. The algorithms are presented in a sense-making way that focuses on the base-ten structure of the number system. As students calculate area and volume, explore equivalent fractions, use the distributive property, and calculate mean averages, their skill and proficiency with the basic facts and the use of algorithms will become more proficient and accurate. Students at this level, will also develop a strong conceptual understanding of fractions, both common and decimal, as they model problems with pictures, arrays, and manipulatives.

Mathematical Content

In its document *Principles and Standards for School Mathematics*, the National Council of Teachers of Mathematics (NCTM) has identified the mathematical content that should be part of every mathematics curriculum. The content in *Growing with Mathematics* incorporates all five content standards in its program for grade four.

- **Number and Operations**

In grade four, students learn to use the more efficient methods of algorithms to multiply and divide. The focus is on knowing when and in what situations one needs to use the operations of multiplication and division. Understanding and working with fractions, both common and decimal, is another fourth-grade focus. Students learn to find fractional parts of a set, identify equivalent fractions, and add and subtract fractions.

- **Algebra**

In grade four, algebraic reasoning builds on students' experiences with number and the properties of number. For example, students use the distributive property and area model to multiply two- and three-digit numbers. At this level they also describe, extend, and make generalizations about both geometric and numeric patterns.

- **Geometry**

In grade four, students continue to refine ways of identifying and describing shapes and their properties and they develop a larger vocabulary associate with geometry. They also develop an understanding of how to specify location on a grid and use geometric models to help them solve problems. In *Growing with Mathematics* at this level, students build, draw, trace, model, measure, and construct geometric shapes as they investigate topics that include congruence, similarity, tessellations, symmetry, location, and transformation.

- **Measurement**

Students in grade four calculate area, perimeter, and volume of a variety of regular and irregular shapes and solve problems involving measurements of distance, capacity, and weight. Students further develop their understanding of time by exploring the relationship of the cycles of Earth, moon, and sun as they relate to units of time.

- **Data Analysis and Probability**

At the Fourth Grade level, students interpret and analyze graphs based on real-world data. They also read, interpret, and construct line graphs and circle graphs. Students justify conclusions and make predictions based on data presented in a variety of graphs. At the fourth-grade level, students also conduct probability experiments and use mathematical terms such as outcome, trial, likely, unlikely, and certain to describe the results of their experiment.

