

Joyful Scholars: Montessori for the Elementary Years

During the early childhood years in Montessori classrooms, parents watch as their young children learn to read, write, and explore the world around them. The learning process seems painless and incredibly effective. It is both. What it is *not* is simple. The Montessori Method has been perfected over many decades, and it takes many years of dedication to become a Montessori teacher.

Montessori parents who are thrilled with their young children's progress often urge Montessori schools to expand their program to include the elementary years.

The Elementary Montessori program has also been proven to be painless and effective. Establishing a new elementary program, however, is not simple. It is not merely an extension of what came before. It is exciting, complex, and different!

Elementary Montessori teachers become certified after a rigorous course of study lasting a full year or longer. Qualified Montessori teachers at this level are in great demand and are often hard to find. Older students are also physically larger, requiring more classroom space. In addition to the Montessori materials that students at this level will continue to use, new research and teaching materials, such as encyclopedias, computers, and microscopes become exciting, necessary, and expensive educational tools.

Then there's the issue of accountability. This is the level when parents become increasingly focused on how their children compare to other students of the same age who have experienced a non-Montessori education. Issues of grading, test scores, and homework are raised much more often.

While these challenges should be carefully considered before expanding an existing program to include the elementary years, it is important to remember that Montessori at the elementary level works! It is the important next step in the lives of the "renaissance" adults we hope our children will someday become, and it is well worth the effort that it takes to produce a quality program.



As children near the end of their kindergarten year in Montessori, many parents struggle with the question of whether or not to keep their children in Montessori for the elementary program. On the one hand, the typical Montessori five-year-old's self-confidence and love of learning makes many families ask: "Why tamper with something that is clearly working?" On the other hand, since the children will be moving on to another class one way or the other, many parents feel that the first grade seems to be the logical time to make the transition from Montessori.

For many families, a major consideration will be the ability to save thousands of dollars a year by taking advantage of the local public schools. Others wonder if a more highly structured and competitive independent school would give their child a better preparation for college.

Although each family will analyze the issues in their own way, the family's final decision will involve an investment in their children's future. All of us want the best for our children, and the often unspoken concern of many parents is: "Will Montessori prepare my child for the *real* world?"

The answer, by the way, is *yes!* Montessori works! It has worked for years in thousands of Montessori schools around the world. Montessori has enjoyed the support of some of the leading personalities of our time, including President Woodrow Wilson, Alexander Graham Bell, Thomas Edison, Henry Ford, Mahatma Gandhi, Helen Keller, Sigmund Freud, Buckminster Fuller, Bertram Russell, Jean Piaget, Alfred Adler, Erik Erikson, Anne Frank (who was a Montessori student), and David Elkind, just to name a few. One elementary teacher responded to her parents' fears by describing "the Montessori Way" as follows:

"Many parents express the concern that Montessori at the elementary level may not prepare them for the 'real world.' I'm not exactly sure what that means. Is it that their Primary Montessori experience was too secure, too child-centered, too accepting? Surely, those qualities cannot be seen as negatives. Is it that there is a sneaking suspicion that all this Montessori stuff is fine up to kindergarten, but now it's time to face math tests and text

Authors' Note: For this chapter, we have drawn together some of Dr. Maria Montessori's thoughts about the foundation of education at the elementary years from three of her books, *To Educate the Human Potential*, *From Childhood to Adolescence*, and *Spontaneous Activity in Education*. In a few places, we have taken some liberty with the original translation for the purpose of clarity.

"The passage to the second level of education is the passage from the sensorial, material level to the abstract. The need for abstraction and intellectual activity makes itself felt around the seventh year.

*Before age seven, the child focuses himself on a sensorial exploration and classification of the relationships among concrete objects — not exploration on the intellectual plane. The three- to seven-year-old generally is content to know **what** something is, along with a simplistic explanation of its function. The older child is oriented toward intellectual discovery and investigation.*

In the second period, the child needs wider boundaries for his social experiences. He needs to establish social relationships in a larger society and the traditional schools, as they have been conceived for so long, can no longer be sufficient for him. He feels the closed environment as a constraint, which is why children of this age may no longer go to school enthusiastically. He prefers to catch frogs or play with his friends without adult supervision. An education that suppresses the true nature of the child is an education that leads to the development of unhappy and socially immature adults.

It is at age seven that one can note the beginning of an orientation toward the judgement of acts as right or wrong, fair or unfair ... This preoccupation belongs to a very special interior sensitivity — the conscience. The seven-to-twelve-year-old period, then, constitutes one of particular importance for moral education ... The adult must be aware of the evolution that is occurring in the mind of the child at this time and adapt his methods to conform with it.

These three characteristics — the child's felt need to escape the closed environment, the passage of the mind to the abstract, and the birth in him of a moral sense — serve as the basis for a scheme at the elementary level."

— Dr. Maria Montessori

books, standardized curricula and a real school? I suppose it is a question of examining one's own values regarding education. The observable fact is that the majority of children in Elementary Montessori programs achieve high-level academic standards because they are highly motivated and have been exposed to an extremely broad and integrated curriculum.

They may not have a weekly math test on which their grade is based, but they can prove to you that 'the answer in division is what one unit gets.' No, they won't have a multiple-choice quiz on Chapter 2 of their science or geography textbook. Rather, they can independently research topics using an encyclopedia, atlas, reference books, maps, microscopes, or magnifying glasses. Real school should engender a love of learning and an acceptance of personal responsibility for intellectual growth as well as social interaction. Real school attempts to shape long-term attitudes and concrete skills necessary not just to move up to the next grade, but to 'move up to' a successful and happy life."

Elementary children face new developmental challenges. A specially prepared learning environment is just as important now as it was before during the early childhood years if children are to fulfill their complete learning potential. More than school achievement test scores are at stake. Learning to identify, pursue, and communicate deep interests in the world leads children to self-mastery and to habits of lifelong learning.

Elementary Montessori students themselves are often the most compelling argument for the value of an Elementary Montessori education!

What makes Elementary Montessori different?

When you observe an Elementary Montessori class at work, you may find it difficult to get a sense of the big picture. Over here some students are working on math, some are reading, while others are working on science. In the corner, a teacher is giving a lesson to a small group of children, while occasionally glancing up to keep an eye on the rest of the class. The elementary classroom may appear to be unstructured, but these seemingly random, yet obviously purposeful activities, are basic to the independent learning and self-directed activity of the Montessori approach.

While there is a vast range in the level of curriculum on which the children are engaged, each child is considered as an individual. Montessori teachers strive to challenge each according to his or her developmental needs and abilities.

Please keep in mind that, while Dr. Montessori developed a very specific model, individual Montessori schools and classrooms differ. These components, however, are typically found in most programs.



“Montessori Elementary gives children the opportunity to continue to progress at their own pace in an environment that nurtures a love of learning. Children take responsibility for their own learning and have daily opportunities to make decisions and choices in a child-centered classroom. They are exposed to many complex concepts at an early age through the use of wonderful concrete learning materials.

It is not unusual to see seven-year-olds in a Montessori classroom constructing atomic and molecular models. Nine-year-olds analyze the squares of trinomials, while ten-year-olds solve algebraic equations and twelve-year-olds compute the square root of large numbers.

What parent who has watched her children thrive both intellectually and socially in the Children’s House would not want this to continue in the elementary years?”

— Judi Charlap
Elementary Montessori Teacher
The New Gate School, Sarasota, Florida

Basic Components of the Elementary Montessori Program

Multi-Age Class Groups

Elementary Montessori classes continue to bring children of different age levels together. Normally, classes will span three age/grade levels, with the common divisions being ages six to nine (grades one to three in the United States) and ages nine to twelve (grades four to six). Some schools may follow a somewhat different scheme of grouping their children. There are many reasons why Montessori classes group children of several grade levels together:

- Since Montessori allows children to progress through the curriculum at their own pace, there is no academic reason to group children according to one grade level.

- In a mixed-age class, children can always find peers who are working at their current level.
- To accommodate the needs of individual learners, Montessori classrooms have to include curriculum to cover the entire span of interests and abilities up through the oldest and most accelerated students in the class. This creates a highly enriched learning environment.
- In multi-level classrooms, younger children are constantly stimulated by the interesting work in which the older students are engaged.
- At the same time, in multi-level classrooms older students serve as tutors and role models for the younger ones, which helps them in their own mastery (we learn best when we teach someone else) and leaves them with a tremendous sense of pride.
- By working with children for three years, teachers get to know them extremely well.
- And, finally, there is a strong sense of continuity in the Elementary Montessori class, because two-thirds of the children return each year for either their second or third year with the same teacher(s). Most of the children know one another and understand the culture of the class. This makes it much easier to orient new children into the group.

Friendships and Community

One of the things that you will normally see when you enter an elementary classroom is joy, excitement, and enthusiasm. These are not children



(Above) Students participate in a lesson on the geological folding of the Earth's crust.

who are given worksheets over and over again. These are children who are engaged.

Montessori schools are normally small close-knit communities of children, teachers, and parents. They are like an extended family. Everyone knows everyone else. Children become close and remain friends with their teachers and both younger and older classmates. They grow up and study together for many years. While there may not be as many other children in the school as they would find in a larger school, their friendships will tend to be closer.

Elementary Montessori students can move around. They don't have to sit at a desk all day long. Students work together most of the time, either helping one another master skills and information or on group projects.

Parents are normally very involved at the elementary level as partners in supporting their children's education. They may come in to teach lessons, take small groups out into the

community for field trips, and help with celebrations and performances.

Elementary Montessori Teachers Serve as Mentors, Friends, and Guides

The Elementary Montessori educator is not so much a "teacher" in the traditional sense as a "guide." In more and more schools, this title is actually used to describe their role.

The Elementary Montessori curriculum is very broad and requires the teacher to have a broad and thorough education of his or her own. With lessons that range from the history of mathematics to the physics of flight, mineralogy, chemistry, algebra, geometry, and literature, to name just a few, the average teacher would be lost.

The best Elementary Montessori teachers are "renaissance" men and women; individuals who are equally interested in mathematics, the sciences, the arts, architecture, literature, poetry, psychology, economics, tech-

nology, and philosophy. Beyond this, the Elementary Montessori educator needs patience, understanding, respect, enthusiasm, and a profound ability to inspire a sense of wonder and imagination. Such teachers are very rare, but they are absolutely magical!

Becoming an Elementary Montessori teacher requires a year of graduate study and student teaching and countless hours of hard work to gather or create the curriculum materials that constitute a prepared Elementary Montessori environment.

Academics

The Elementary Montessori classroom offers an environment in which children tend to blossom! This may sound like propaganda, but it's true!

Dr. Montessori was convinced that children are born curious, creative,

(Right) Elementary students often prefer to work on the floor with their friends.

and intelligent. In designing the elementary program, she was attempting to cultivate this human potential, nurture the spontaneous curiosity with which all children are born, and inspire a sense of wonder in their spirits.

The elementary years are the primary sensitive period for the acquisition of what has recently come to be known as “cultural literacy.” Older children want to know the reason why things are as they are found in the world. They are oriented toward intellectual investigation and discovery.

Here lies one of the significant differences between Montessori education and the schools most children attend. In many classrooms, the primary focus is spent on teaching the *basic* skills of reading, writing, spelling, and mathematics.

From the Montessori perspective, the *basics* are not basic curriculum at all; they represent enabling skills which make it possible for the child to gain access to the real focus and substance of a Montessori education: science, history, the arts, great literature, world culture, politics, economics, and philosophy.

The Elementary Montessori Curriculum

The Elementary Montessori curriculum is highly enriched and challenging. It is organized into three elements:

1. Mastery of Fundamental Skills and Basic Core Knowledge

Montessori evolved out of the European tradition of academic excellence, and offers a rigorous course of study even in the elementary years. Elementary Montessori students ex-



plore the realm of mathematics, science and technology, the world of myth, great literature, history, world geography, civics, economics, anthropology, and the basic organization of human societies. Their studies cover the basics found in traditional curriculum, such as the memorization of math facts, spelling lessons, and the study of vocabulary, grammar, sentence analysis, creative and expository writing, and library research skills.

2. Dr. Montessori's Great Lessons

The Great Lessons are five key areas of interconnected studies traditionally presented to all Elementary Montessori students in the form of inspiring stories and related experiences and research projects.

The Great Lessons include the story of how the world came to be, the development of life on Earth, the story of humankind, the development of language and writing, and the development of mathematics. They are intended to give children a *cosmic* perspective of the Earth and humankind's place within the cosmos. The lessons, studies, and projects surrounding each of the Great Lessons normally span many months, and the questions that the children pose and their efforts to find the answers to their own questions may continue for many years.

"The Great Lessons are so exciting. They engage the children and then send them off to do all kinds of research that they are allowed to do at their own rate and their own pace. When children are excited about something, real learning takes place, and that's where Montessori shines."

— Valaida Wise, Headmistress,
Henson Valley Montessori School
Camp Springs, Maryland

Montessori Elementary: Giving Imagination a Chance

by David Kahn, Executive Director of the
North American Montessori Teacher's Association

Although folk and fairy tales have their place in the elementary classroom, Montessori's vision of imagination — its power and centrality to emotional and intellectual life — is the basis of Montessori's Elementary education and why it works. Nothing compels the six-year-old learner like the canopy of stars overhead or, for that matter, the anatomy of a cell or an inside view of sub-atomic physics. Imagination creates a vision that expands and contracts, while fueling the mind to explore and to create a still bigger view with a deeper enthusiasm. "Human consciousness comes into the world as a flaming ball of imagination ... The secret of good teaching is to regard the child's intelligence as a fertile field in which seeds may be sown to grow under the heat of flaming imagination." (*Montessori*, 1948, pg. 15)

Imagination through Space and Time

The "flaming ball" of human consciousness travels on the first day of the Montessori Elementary experience back to the Big Bang, to the story of the universe as an "encompassing reality" and a "vision of the whole." This story captures the imagination; the child participates in the mystery of the "first cause," which is a whole spectacle of the beginning of self: "We shall walk together on this path of life, for all things are part of the universe and are connected with each other to form one whole unity." (*Montessori*, 1948, pg. 8)

Explaining the child's imagination and its attraction for a plausible story about the origin of the universe, Montessori writes that contemplating the cosmos in fact goes to the universal center of the child in connection with all things. (*Montessori*, 1948, pg. 8) It is clear that the imagination travels beyond the narrow bounds of the world we touch, hear, feel, and see. The elementary child experiences total immersion in a conception of all things. The imaginative ability to grasp the whole generates an emotion, the emotion of wonder and gratitude for large-scale diversity. Wonder is a magnet; it impels from within. Gratitude fosters well-being and harmony; it bonds with the universe. The child feels all at once directed in her learning.

The zest of the six-year-old's work is elicited by the imaginative lure of the concept, not necessarily by the hands-on experience, the physical aspects of a piece of material. For example, a mechanized model of the solar system with simultaneous revolving planets may have appeal as an impressionistic gadget, but the lasting emotion for the child is the realization of the planets' location in space, their mathematical distances, their scale in relation to the Earth. The imagination goes beyond the physical limits of the prepared environment and builds the child's critical attention around the span of the concept. It is important then not to circumscribe lessons, learning kits, or workbook sheets.

Imagination As a Medium for Inductive and Deductive Reasoning

The extension of the mind is further supported by scientific classification, as Montessori suggests when she says, "The world always repeats more or less the same elements." Thus, it is with the aid of both imagination and abstraction that the elementary child can expand the idea of "protozoa" to all unicellular life or



extend the definition of "insect" to all insects of the world. "Reality is studied in detail, and then the whole is imagined. The detail is able to grow in imagination, and so total knowledge is attained." (*Montessori, 1976 [1948], pg. 34*)

Thus imagination represents the motion of reason — the impetus that moves the mind from the general to the particular and back again. A child experiences the general "story of the coming of life" and moves to the specific, a coral reef, researching it and then putting it in the context of the whole story once again. Or consider the possibilities inherent in a chunk of obsidian. Just a rock? Hardly. The child's mind can travel from obsidian to lava to volcano to the formation of the Earth's crust. Obsidian can also suggest the Native American's biface tool for scraping. Obsidian can also be classified into one of three categories: igneous, metamorphic, or sedimentary. The experience of obsidian builds connections, explorations, relationships. The whole impetus of science is fostered by an energized medium of detail connected to the whole — all propelled uniquely by the child's imagination, not teacher assignments.

"To do well, it is necessary to aim at giving an idea of all the sciences, not in precise detail but only as an impression. The idea is to 'sow the seeds of the sciences' at this age, when a sort of sensitive period for the imagination exists. Once the idea has been presented, we must show that a science extends from each branch: mineralogy, biology, physics, chemistry, etc. And, as we have seen, an examination of a detail triggers the study of the whole." (*Montessori, 1976 [1948], pg. 40*)

Imagination As a Love of Interdisciplinary Abstraction

Imagination works hand in hand with the emotional, the beautiful, and the essentially true. It should not be cluttered with small tasks that come from the teacher's preconceived notions.

"Whatever is presented to [the child] must be made beautiful and clear, striking his imagination ... Once this love has been kindled, all problems confronting the educationist will disappear. The great Italian poet Dante has said ... 'The greatest wisdom is first to love' ... Children can and do love abstract subjects, such as mathematics, so love can exist for the mental work, and the psychologist's dream for the future has already been achieved ..." (*Montessori, 1948, pg. 24-25*)

The emotional attachment once inspired by love of the immediate environment at the primary level expands at the elementary level to love of ideas and abstraction. A "sentiment of love" for all subjects is fostered by this flexible and illuminating grasp of reality, which is activated by imagination. The nature of the imaginative investigations is a passion demonstrated within and among all subjects as a way of experiencing the disciplines in a common world, a seamless web of interconnected knowledge to be explored uniquely by each teacher and child: "The mental and emotional growths are linked." (*Montessori, 1948, pg. 24*) The imagination's ability to see each discipline as a whole works towards building the interdisciplinary approach.

I remember, for instance, my first elementary class taking their geologist's picks and removing from a limestone matrix a horn coral — their first horn coral. "Look what I found!" And in the very next hour the same child chomps into his sandwich and compares it to a geological matrix. "Look! My sandwich is a sedimentary sandwich." The imagination is fluid; it allows knowledge to transfer within a discipline and between disciplines.

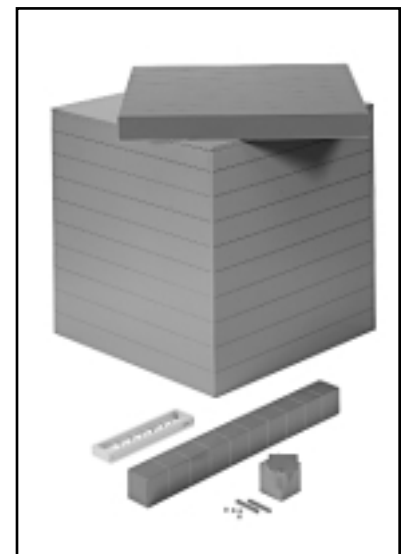
3. Individually Chosen Research

Elementary students are encouraged to explore topics that capture their imagination. Most former Montessori students look back on this aspect of the elementary program with particular fondness.

The approach is largely based on library research, with children gathering information, assembling reports, teaching what they have learned to their fellow students, and assembling portfolios and handmade books of their own.

Beginning by simply using an encyclopedia to find the answers to a list of questions prepared by

(Below) The **Hierarchy of the Decimal System** is an excellent example of how Montessori materials make abstract concepts concrete. The largest green cube represents the number one million. The red square prism is 100,000, the blue rectangular prism 10,000, and the small green cube 1,000. In the box are even smaller figures representing 100, 10, and 1 unit. *Photo courtesy of Nienhuis Montessori USA, Inc.*





their teachers, Montessori students are taught how to use reference materials, libraries, and the Internet to gather information and uncover the facts. Their oral presentations and written research reports grow in sophistication and complexity over the years.

The Montessori Materials and the Passage to Abstraction

At the elementary level, learning continues to be a hands-on experience, as students learn through inquiry.

The advanced Elementary Montessori materials provide children with more complex and abstract concepts in mathematics, geometry, and pre-algebra. The goal is to lead the child away from a dependency on concrete models that visually represent abstract concepts towards the ability to solve problems with pen and paper alone. Part of this is made possible by the older child's ability to grasp abstract concepts, but it has been greatly enhanced over the years by countless hours of work with the concrete materials that made the abstract real and helped him visualize the abstraction.

Similar hands-on materials help students understand grammar, sentence analysis, geographical facts, and concepts in science.

Learning How to Learn

At the elementary level, Montessori students learn to think for themselves. They are encouraged to do their own research, analyze what they have

Likewise, imagination inspires the miraculous discovery when the logical layout of the binomial square yields the vision of a trinomial square. The child exclaims at the elementary age: "Nobody taught me." The elementary mind takes its own cognitive steps: the passages are self taught. The child creates the trinomial square by visualizing from the binomial square. There is an inner appreciation from the light of discovery, propelled by the ability of the mind to leap to something new, something not presented, something not demonstrated. The order of abstraction collaborates with the invention of imagination.

Imagination can ease the production of research by combining two ideas: constructiveness and writing. Children study history, for example, in the context of the needs of humans, producing a classroom lined with dioramas, tapestries, history fairs, murals, clay models, 'Needs-of-Humans' charts, day-in-the-life fiction. The children invent, through the making of things they need, the opportunity to establish what is their work, their interests, their ideas.

Imagination as the Basis for Philosophy of Life and Service

The imagination is the engine that drives the elementary years; it powers the quest for knowledge across the disciplines. It builds towards philosophy and great speculations. There is an emotional quality to the question "I wonder if ...," which becomes a conscious resource as the child matures into adolescence. This Montessori thirteen-year-old-student expressed the power of imagination in what he called an "expository essay." His imagination had become focused and keenly aware of its majestic reach.

"The universe is a huge area occupied by mass in random spots. The word 'universe' has come to mean everything in human knowledge and even beyond, and so is very vague and is, in effect, a synonym for everything. Yet despite its vastness, the idea of a huge universe doesn't seem to satisfy the human mind. Either because our minds are too primitive to conceive a universe so vast that it is never ending or because our minds are convinced everything, even life, has an end, people feel that there must be something else."

Reflecting on imagination and enthusiasm, the adolescent forms an identity reflected in the following essay, written later in life by Molly McNamara, another Montessori child. The imagination, now a conscious resource in this teenager, formed her life vision while integrating her personality.

My Good Earth

Every human being has his Good Earth; mine is the wonderful world of imagination. My imagination is many things to me: my security; my future; my wealth. Without an imagination, life would be desolate, but with one, life is rich and full of joy.

Imagination provides for me an escape and sanctuary from the sometimes harsh realities of life. If I'm feeling friendless and my world has turned a dull blue-grey, I can escape at will to a dreamland which is bright and shiny, red and gold, with untapped stores of blithe merriment. With no equipment except my own mind, I can go anywhere — see, do, and experience anything I wish. When life gets me down, nothing can stop me from entering the world of imagination. I can always feel secure knowing that I have my separate world of imagination to fall back upon.

In addition, imagination is my future. I am only sixteen, but I already have hundreds, if not thousands, of alternate futures planned out for myself. I only have one true life to live, but in my dreams, I have been an actress, a singer, a millionaire, a lawyer, a teacher, a politician, an international traveler, a wife, and a mother much loved by her family and never ever disobeyed. I am still young, and it is conceivable that any one of these could come true. I don't know if dreaming about them will have the same thrill

and excitement when my life has been set on a definite course, but however my life turns out, I shall have had the satisfaction of living many different lives before I 'settle down.'

Finally, having a healthy and well-developed imagination is wealth beyond human measure. It gives me many small gifts, such as the ability to entertain myself with stories while I am lying in bed and cannot sleep and not having too much trouble coming up with topics for stories and papers for English class. However, in my opinion, it has also given me some of the greatest gifts a person can have. It has bestowed upon me a love of literature which will remain with me until I die, for I can easily put myself in place of a character in one of my current favorite books or plays. An imagination makes it easier for me to see the ideas behind a story or a character. Most importantly, my imagination has given me the ability to appreciate the many wonderful things I have in my life. I can appreciate the beauty of nature and the love of my family, because I realize the emptiness of a life without these gifts. Without an imagination, I would soon take all I have for granted.

Imagination is one of the greatest gifts God can bestow upon man. Mankind received an imagination along with his soul to differentiate him from other animals. I have been blessed with a particularly strong imagination; it is my Good Earth, and I would not trade it for any amount of worldly wealth.

Although she implies much about imagination, primarily Molly says she can imagine what is other than herself. She can put herself into the context of service, of beauty, of nature, of her own future, or the discovery of new people and places. She equates imagination with the "Good Earth," the very fertile field that Montessori articulates over and over.

Imagination as the Basis for Cooperative Vision: The Classroom and Beyond

Imagination also expands the child's perception of his social world community to global community. From the community of classroom, the elementary child can construct vision of the human family. Montessori writes in an essay entitled *Supernature and the Single Nation*:

"We could no longer live within nature if we could only walk with our feet and look with our eyes. Everything depends on the possibility of our going beyond our natural limitations ... All mankind forms a single organism, but man continues to live in an emotional world that is outdated. Humanity forms a single unit — a single nation. This single nation has opened the whole world and brought all men together." (Montessori, 1972 [1949], pg. 116-117)

The necessary conservation of the Earth's resources can only be addressed by the "single nation." The new world order is converging towards an international collaboration to protect the ozone layer, to keep the air and water fresh and the rain forest intact, and to keep the peace. Thus, the imagination encompasses the whole task of mankind. As a vital part of education, imagination facilitates a new vision for each generation so that the human community may accomplish its work and express its recurring dream.

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(Above) An elementary student's reproduction of a horse from a Neolithic cave painting.

found, and come to their own conclusions. Montessori teaches students to think, not simply to memorize, feed back, and forget. They literally learn how to learn, discovering that the process of learning can, and should, be as natural as breathing! Students become fully engaged in the learning process.

Rather than present students with all the "right answers," Montessori teachers ask the "right questions," and challenge them to find new solutions or discover the answers on their own. This is yet another element of the Montessori program that prepares children to succeed in the real world of ideas, enterprise, and challenging perspectives. Why? Because while learning the right answers may get children through school, learning how to learn will get them through life!

An Invitation to a Lesson

A Montessori teacher will invite her students to a lesson, consciously trying to attract and then capture their interest, knowing that at times she will "fail to make the sale." She attempts to make each lesson as interesting as possible. For example, she might say, "Today, I've brought in a live lobster, and I have room for eight of you who are interested in learning about crustaceans and how they live. If you are interested, you may join me." She invites her students to come over for a lesson voluntarily, knowing that there will be some days when no child will come.

MONTESSORI PROGRAMS

(Right) Elementary Montessori students rarely use textbooks. They are encouraged to explore topics that capture their imagination. Students do a great deal of independent reading and library research.

Children gather information, assemble reports, assemble portfolios and handmade books of their own, and teach what they have learned to their friends.

Intrinsic Motivation

Sometimes, because Montessori places so much emphasis on cultivating children's sense of curiosity and wonder, parents may have the impression that students can simply do whatever they wish, avoiding subjects that they dislike. This is certainly not the case in a well-run elementary class.

Montessori helps children learn how to learn. We help focus their attention, come into a setting willing to listen, ready to learn, and able to observe. Montessori students reflect and play with ideas until they figure out how things fit together, and they practice new skills until they are mastered.

We operate from the understanding that intelligence, creativity and imagination can be found in every child. A lot of Montessori education is simply about learning how to learn: observing life, listening, looking for patterns and connections, and reflecting on how things fit together and how they work.

Even though there may be some things that give them difficulty, or which they may do better than others, children can learn to recognize their best learning style. They can learn to pursue not only those things that they find interesting or which come easily, but as they become more organized and self-disciplined, they learn how to accomplish things that they would rather avoid.



The Junior Great Books Program for Montessori Classrooms

Montessori schools throughout the United States are discovering and implementing the Junior Great Books Program into their curricula.

The Junior Great Books Program is sponsored by the Great Books Foundation, a national nonprofit educational organization based in Chicago. Through their Junior Great Books Program, Montessori schools provide opportunities for students in kindergarten through high school to develop a love of reading by discussing some of the most engaging, most

enduring works of literature ever written.

Children in this program read classic folk and fairy tales, along with outstanding contemporary works from all over the world. They are guided by a trained leader (usually a teacher or parent volunteer), who engages the children in "shared-inquiry" discussions about their reading.

The program teaches children how to think about what they read and how to discuss and develop their ideas about literature with others. Parents

and Montessori guides value the program because it improves students' reading, thinking, speaking, and social skills.

Montessori schools throughout the United States have found the Junior Great Books Program to be very compatible with the Montessori Elementary program approach, because they both stress authentic, active learning and help children develop a lifelong appreciation for learning.

In keeping with Montessori's emphasis on developmentally appropriate learning opportunities, the Junior Great Books Program is also designed to employ activities that provide children with structure and flexibility, giving children the freedom to develop skills and capacities in their own way but within a definite structure and clear discipline. Both approaches are characterized by a balance between independent thinking and collaborative learning, which tend to be mutually reinforcing.

At the same time, this format instills a respect for diversity and differing viewpoints, since there is no attempt to reach consensus, nor is there any attempt to lead students to a "right" answer. Finally, students working with the Program are challenged to explore interpretive problems in a work of literature that is rich in language and full of meaning, helping children develop a genuine love of literature and reinforcing a habit of lifelong learning through reading.

Examples of Material from the Junior Great Books Read-Aloud Program for Grades K-1

Volume 1: Dragon Series

The Frog Prince, Brothers Grimm, as told by Wanda Gag

Guinea Fowl and Rabbit Get Justice, African folktale as told by Harold Courlander & George Herzog

Nature Speaks, Poetry by Carl Sandburg, James Reeves, & Frederico Garcia Lorca

Examples of Material from the Junior Great Books Series for Grades 2-6

Series 2: First Semester

The Happy Lion,
Louise Fatio

*The Tale of Squirrel
Nutkin*, Beatrix Potter

*How the Camel Got His
Hump*, Rudyard Kipling

*Kanga & Baby Roo
Come to the Forest,
and Piglet Has a Bath*,
A.A. Milne

*Arap Sang and the
Cranes*, African folktale
told by Humphrey
Hamann

Blue Moose, Daniel
Manus Pinkwater

*The Magic Listening
Cap*, Japanese folktale
as told by Yoshiko
Uchida

*The Jackal and the
Partridge*, Punjabi folk-
tale as told by Flora
Annie Steel

Nail Soup, Swedish folk-
tale as told by Linda
Rahm

*The Apple of
Contentment*,
Howard Pyle

Series 5: First Semester

Charles, Shirley Jackson

Ghost Cat, Donna Hill

Turquoise Horse, Gerald Hausman

Maurice's Room, Paula Fox

Lenny's Red-Letter Day, Bernard Ashley

The Prince & the Goose Girl, Elinore Mordaunt

Tramp, Malcolm Carrick

Alberic the Wise, Norton Juster

Posbu and Aruwa, African folktale as told by
Humphrey Harman

The Invisible Child, Tove Jansson

Activities for Grades 2 - 6

Text Opener: a pre-reading activity to help students connect with the story.

First Reading of the story followed by **Sharing Questions**.

Second Reading with Directed Notes: a method of taking notes that motivates students to read actively and reflectively.

Interpreting Words: vocabulary work that focuses on words that are thematically important, not just unfamiliar.

Shared Inquiry & Discussion

Writing after Discussion: creative writing and personal or evaluative essays.

Montessori does not just prepare children to make a living; it prepares them to make a balanced life. This will require a nurturing environment. We argue that if a child is emotionally handicapped by self-doubt, if he is afraid of looking foolish, afraid of failure, then the grade or approval of parents and teachers becomes an end in itself, rather than what is really important, the joy of exploring ideas and figuring things out. We want children to love learning not the petty external and artificial rewards that most schools use to motivate students.

No one needs to motivate an infant or a very young child; they are born motivated to learn. Two-year-olds are normally fascinated by the world. External motivation interferes. Curiosity and intelligence are just as

vibrant in a student during the elementary, secondary, and university years. The true challenge of education is to keep the spark of human intelligence and curiosity alive. A vital part of being human comes from the sense that the world is vast and fascinating and that we should never be afraid to ask questions and wonder why things are the way they are, or how things might be *if* . . .

Children must never be afraid of asking questions, because that's how we learn. Human beings have always learned as much from their mistakes as from their successes. But when parents and teachers look at the early creative writing of the young child and find creative phonetic spelling or sloppy handwriting, they often shut her off when they focus on what she did incorrectly, rather than what she did right. When parents are disappointed at a child's early efforts, they subtly communicate that their expectations have not been met. Their children

then learn to protect themselves by quietly pretending that they do not care or by choosing not to share information with their parents when they can avoid it. We need to help children discover their own unique talents and capacity to create and discover.

Above all, Montessori is an education of the heart. We look at each child as a unique human being. We know that each child has particular strengths and a distinct learning style. We know that each child's emotions and self-esteem play a critical role in whether or not they are ready to learn. We find it difficult to imagine any other way of teaching.

The Integrated Montessori Curriculum

In the Montessori program, subject matter is not separated into curriculum areas: *this is geography, this is social studies, this is science, this is math*. Everything is interrelated. The subjects weave in and out of each other (see chart on page 55). Literature, art, music, dance, drama, history, social issues, political science, economics, architecture, science, and the study of technology all complement one another in the elementary curriculum. This integrated approach is one of the Elementary Montessori program's great strengths. Studies come alive through a host of hands-on projects and activities.

Language Arts and the Humanities

The Elementary Montessori Language Arts program places great stress on the development of strong skills in composition and creative writing.

(Below) Montessori materials such as the **Fraction Skittles** and **Fraction Circles** help students grasp abstract concepts, such as the addition of fractions.





(Above) Younger elementary students often compose short essays with the **Small Moveable Alphabet**.

Students are asked to write continuously, emphasizing at first an enjoyment of the writing process, rather than the strict use of correct grammar and spelling. However, formal grammar, spelling, and sentence analysis are systematically taught.

Elementary children are normally very interested in words and sentences. They like to parse and analyze. In this way, they are clarifying their understanding of the structure of language that they absorbed unconsciously in the early childhood class. Montessori takes advantage of their natural interest and gives children a great quantity and variety of material. While they study the theory of grammar, spelling, and sentence analysis; they are also expanding their knowledge of written language.

During the elementary years, Montessori increasingly focuses on the

development of research and writing skills. This overlaps into the other areas of the curriculum, from which students draw topics of interest. Gathering information from the encyclopedia and library reference books, they learn to prepare well written reports.

Creative writing continues to be equally important, as students are encouraged to write and share their stories, plays, poetry, and class newspapers with others.

Finally, and most importantly, the key to the elementary Language Arts curriculum is the quality of the material Montessori gives children to read. Instead of basal readers, they are introduced from an early age to first-rate children's books and fascinating works on science, history, geography and the arts. Many elementary classes follow the Junior Great Books Program (see page 124), with formal literary studies continuing every year through graduation. Literature is connected with all of the other areas of the curriculum, with

students reading stories and plays about cultures and historical periods that they are studying. By introducing students to the very best literature available for young people, Montessori cultivates a deep love for the world of books.

Unified Mathematics

Montessori math is based on the European "Unified Math" model, which introduces elementary students to the study of the fundamentals of algebra, geometry, logic, and statistics, along with the principles of arithmetic.

Montessori students learn to recognize complex geometric shapes and figures. They learn to define, calculate, and draw all sorts of geometric relationships: angles, polygons, circumference, area, volume, squares and square roots, cubes of polynomials, to name just a few. In Montessori, arithmetic, algebra, and geometry are interrelated.

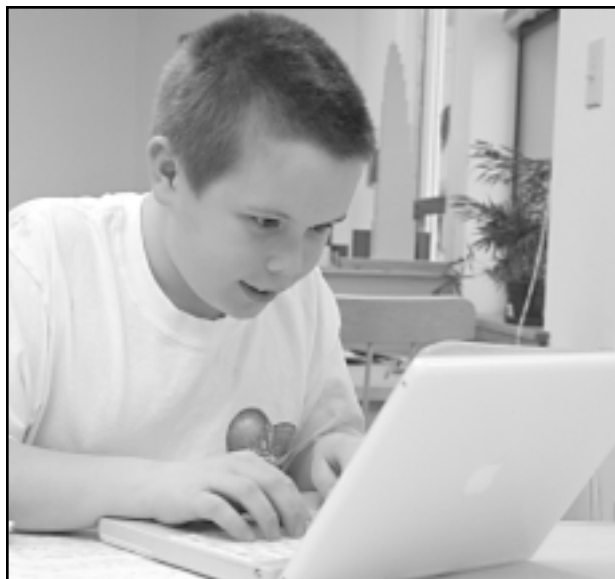
Elementary Montessori students learn from hands-on experience by applying math in a wide range of projects, activities, and challenges, such as graphing the daily temperature and computing the average for each

"When we study the history of Maryland, for example, we also look at the geography of the land to understand what the original colonists had to work with when they came here. We also look at the first Americans who lived here when the colonists arrived. We look at the geology and ecosystems of Maryland from our mountains to the Chesapeake Bay. We go to the Chesapeake Bay itself. It's one of the largest ecosystems in the world. As the children look at the Bay, they begin to realize that it's all interconnected."

— Marsha Jacques, Head
Evergreen Montessori School
Silver Spring, Maryland



(Above) An elementary student is shown working with **Grammar Symbol Materials** to construct phrases and sentences following a specific grammatical assignment.



(Above) Many students use laptops or desktop computers to learn to write essays and short stories.



(Below) This student is using the **Stamp Game** to solve a problem in dynamic addition.

month, or adjusting the quantities called for in a recipe for a larger number of people. Because children love to work outdoors, we try to prepare tasks that use the school grounds whenever possible. For example, using simple geometry, students can determine the height of a tree, measure the dimensions of buildings, or calculate how much they will feed the school's animals in a year. They prepare scale drawings, calculate area and volume, construct three-dimensional geometric models, and build scale models of historical devices and structures.

Montessori Mathematics climbs in sophistication through the level of trigonometry and calculus. It includes a careful study of the practical application of mathematics in everyday life, such as measurement, handling finances, making economic comparisons, or in gathering data and statistical analyses.

Computers

The computer is a basic tool used in many Elementary Montessori classes. On a fairly simple level, students use computers to help with their memorization of their basic math facts. Computers provide all sorts of simulation and problem-solving situations, calling on students to compete against the computer or make predictions while engaging in role-playing scenarios.



(Above) The **Golden Mat** provides still another step on the passage to abstraction, as students solve basic math operations.



(Right) Students use the **Multiplication Checkerboard** to learn the principles of long multiplication.



(Above) Students use the **Racks and Tubes Division Materials** to solve problems in long division.



(Opposite Page - bottom left) Elementary students use the **Fraction Insets** to explore a wide range of concepts in geometry and mathematics, such as the principle of equivalence of fractions. **Montessori Fraction Circles** are also used to teach the concept of angles in elementary geometry.

(Left) The **Large Bead Frame** leads children toward the ability to solve math problems abstractly, using an abacus with representations of quantities into the millions.

Older students work with spreadsheets, graphs, and logical analysis. Today they are also learning desktop publishing, multi-media presentations, digital photography, and video editing. And every year, more and more elementary classes teach children how to use their computers to access the world's largest library collection: the Internet.

History and Culture Come Alive in the Elementary Class

One of Montessori's key objectives is to develop a global perspective, and the study of history and world cultures forms the cornerstone of the curriculum.

Physical geography begins in the elementary program with the study of the formation of the Earth, the emergence of the oceans and atmosphere, and the evolution of life. Students learn about the



(Above) Materials used to help students learn the names of geological features in the landscape.



A model of the Inner Core of the Planet Earth.



A student uses the Puzzle Map of South America to help him learn to identify and write the names of the countries of Latin America.



(Left) At a more advanced level, elementary students work with the Pin Maps to learn the names of the countries and capital cities of Africa.

(Below) Younger students use concrete materials, such as the Land and Water Forms, to continue their study of basic land formations in earth science.



world's rivers, lakes, deserts, mountain ranges, and natural resources.

Elementary students study the customs, housing, diet, government, industry, arts, history and dress of countries around the world. They also study the emergence of the first civilizations and the universal needs of humankind. In the upper elementary class, the focus is usually placed on early man, ancient civilizations, and American history.

The elementary program teaches history through hands-on experiences. Students may build shelters, cook over a wood fire, churn butter, hike, work with map and compass, canoe, and camp out. They build models of ancient tools and structures, prepare their own manuscripts, and recreate everyday artifacts from the past.

International studies continue during the elementary years, integrating art, music, dance, drama, cooking, geography, literature, and science. The children learn to prepare and enjoy dishes from all over the world. They learn the traditional folk songs and dances in music and explore traditional folk crafts in art. They read folk tales, literature, and reference materials about the cultures they are studying and prepare reports about them. Units often culminate in marvelous international festivals.

Practical economics is another important element in the Elementary Montessori curriculum. Students learn how to compare prices against value, compute costs, maintain a checkbook, operate small school stores, and understand the stock market.

Citizenship is yet another element that weaves throughout the elementary curriculum. Students study the workings of the local, state, and federal governments and begin to follow current events.

During election years, they follow candidates, discuss the issues of the day, and sometimes even volunteer in



This student is working with a Time Line of Life on Earth, placing cards that show the plants and animals that thrived during different periods in the development of the modern Earth.



the campaign of a local candidate of their choice.

The goal is to lead each student to explore, understand, and grow into full and active membership in the adult world.

Montessori's Hands-On Approach to Science

The Montessori Science curriculum is focused on the study of life, the laws and structure of the universe, and how humanity has struggled throughout history to put our understanding to practical use. It seeks to captivate children's imagination and fill them with a sense of wonder at the grandeur of the universe, the simple beauty of the



physical laws, and the miracle of life. It also teaches them the process and philosophy of science: how to ask testable questions, observe systematically, collect specimens, gather and analyze data, and conduct experiments.

Montessori Science often takes place outdoors. Classes grow flowers and vegetables in small gardens. They often raise class pets and sometimes even small farm animals.

Students are encouraged to learn to recognize and name local trees, flowers, birds, and animals. They learn to recognize familiar plants by their leaves, bark, and seeds. By looking at animal tracks, they can determine which animals live in the area.

In the spring, students may study the local wild and domestic flowers, comparing different species and counting petals, and stamens. They bring caterpillars back to their classrooms to be kept in terrariums so that the children can see the chrysalis that they form and the moth or butterfly that emerges. They hatch frog eggs and watch them turn into tadpoles before releasing them in the pond. In the fall, they look for fruits, nuts, and berries, noticing how they are distributed and what animals look to them as food.

Older children begin to keep journals of their observations of classroom animals and write poems and stories that attempt to capture the sense of

(Opposite Page/Top) Chemistry plays a significant role in the Elementary Montessori curriculum. In many ways, it overlaps into the area of Practical Life as well as Science, requiring students to follow careful procedures, measure accurately, control temperatures, and carefully clean glassware after use.

(Opposite Page/Bottom) Students commonly work with powerful microscopes normally only found in secondary science labs.



wonder and beauty all around us. Back in the classroom, they pursue their investigations using a wide variety of charts and displays, "research" materials, and reference books.

Students collect specimens and bring them back to the classroom for identification, labeling, and display in a nature center. They collect leaves, which can be pressed or preserved as leaf skeletons. They learn the botanical names for the different leaf shapes. They prepare collections of dried plants, seeds, flowers, beehives, bird nests, eggs, snake skins, tree sections, samples of familiar tree woods, cocoons, mounted insects, and animal bones. In most classes you will find ant farms, perhaps a pet chameleon or gerbil, birds, turtles, and aquaria.

More formal elements of biology are taught as well, particularly at the

(Above) This child is studying the life cycle of a star. It is part of an introduction to the study of stellar nuclear synthesis, the process by which complex elements are created by fusion in the heart of the stars.

upper elementary levels. Dr. Montessori found that systematic knowledge allows one to discriminate details among species, literally to see on a whole new level; therefore, we introduce the student to the classification of the plant and animal kingdom.

The study of the internal and external anatomy of plants and animals likewise gives children a new level of awareness and sensitivity in their observation and study of life. They compare different anatomical systems among species, such as the eyes, teeth, hooves, and claws of various animals.



They come to ask questions: *"Why did the horse evolve this sort of teeth or this form of foot?"*

Elementary students also learn a wide range of important basic concepts of physics and chemistry, such as the structure of atoms and molecules, the difference between elements and compounds, the chemical composition of familiar compounds, the three states of matter, and chemical and physical change. Students also enjoy doing research about the elements, and a first exposure to Mendeleev's Table of the Elements.

Elementary children love to work with scientific apparatus and delight in seeing mixtures change color, testing liquids with litmus paper, experimenting with small electrical circuits, or building models of atomic compounds. Students learn to observe and record what takes place during their experiment. The goal is to teach both the scientific method and techniques for safely working with science equipment.

Foreign Languages

As part of their International Studies program, most Montessori schools offer a second language. The goals in a foreign language program are to develop conversational skills, expand vocabulary, understand basic written information in the second language, and have a better appreciation for the culture of the countries where the language is spoken.

The Arts Are Integrated into Every Subject

In Montessori Schools, the Arts are normally integrated into the rest of the curriculum. They are modes of exploring and expanding lessons that have been introduced in science, history, geography, language arts, and mathematics. For example, students might make a replica of a Grecian vase, study calligraphy and decorative writing, sculpt dinosaurs for science, create dioramas for history, construct geometric designs and solids for math, and express their feelings about a musical composition through painting.

Art and music history and appreciation are woven throughout the history and geography curricula. Traditional folk arts are used to extend the curriculum as well. Students participate in singing, dancing, and creative movement with teachers and music specialists. Students' dramatic productions make other times and cultures come alive.

Health, Wellness, and Physical Education

The ideal Elementary Montessori Health and Physical Education program challenges students to develop a personal program of lifelong exercise, recreation, and health management.

The Montessori approach to health and fitness helps children to understand and appreciate how our bodies work and the care and feeding of a healthy human body. Students typically study diet and nutrition, hygiene, first aid, response to illness and injury, stress management, and peacefulness and mindfulness in our daily lives.



Daily exercise is an important element of a lifelong program for personal health. Instead of one program for all, students are typically helped to explore many different alternatives. Students commonly learn and practice daily stretching and exercises for balance and flexibility. Some programs introduce students to yoga, *Tai Chi*, or aerobic dance. They learn that cardiovascular exercise can come from vigorous walking, jogging, biking, rowing, aerobic dance, calisthenics, using stationary exercise equipment, through actively playing field sports, such as soccer, or from a wide range of other enjoyable activities, such as swimming, golf, or tennis. With older students, the goal is to expose students to many different possibilities, encouraging them to develop basic everyday skills and helping them to develop a personal program of daily exercise.

Many schools have limited space and facilities, but where funds and facilities are available for older students, the ideal Montessori environment offers a

(Below) Elementary students learn how to use tools and perform routine household repairs.



(Right) Montessori students routinely help to maintain their classroom and the school grounds.

variety of facilities and programs, which can potentially include a room with stationary bikes and other exercise equipment designed for children, an indoor track, a basketball court, a room for aerobic dance, and perhaps even an indoor pool and tennis courts. Again, ideally, this fitness center would not be reserved for the children alone; school families would be able to use the facilities after hours, on weekends, and during school hours when it didn't interfere with student programs.

An Education in Practical Life Skills

One of the keys to understanding Montessori's success can be found in the way in which it carefully encourages the development of children's self-esteem and independence.



Elementary children are ready to take on a much higher level of challenge and responsibility. The elementary classroom is a small community run almost entirely by the students. They keep the room in order, care for classroom animals, tend to the plants and perhaps a small garden, set up for lunch, organize special events, and generally move about the school much more independently.

Where the early childhood children enjoyed washing dishes and scrubbing tables for the sheer joy of the process, elementary children simply work to get the job done. However, the knowledge that they are responsible for their classroom, and to some degree the entire school, gives Elementary Montessori children a tremendous sense of pride.

The lessons in Practical Life skills found in an Elementary Montessori class are diverse. Children learn how to cook and bake, use a washing machine, iron a shirt, arrange flowers,

fix a bicycle, tie knots, use hand tools, plan a party, balance a check-book, comparison shop, train a dog, dress appropriately for any occasion, write thank-you letters, prepare for a long hike, pack a suitcase or backpack, swim, perform first aid, babysit, learn self-defense, and observe everyday rules of etiquette. Many will serve as school safety patrols or will assist in the preschool classrooms.

Field Trips: Going Out Into the Community

Elementary children are normally anxious for a much higher level of personal challenge. They may enjoy vigorous games and organized sports, daily exercise, long hikes, horseback riding, gymnastics, or dance. They often ask to write and produce their own plays, designing their own costumes and scenery with as little help from adults as possible.

Field trips are often an integral part of Elementary Montessori programs. Students take trips to planetariums, art galleries, the zoo, museums, and many other destinations. They visit the centers of local government, colleges, hospitals, veterinary clinics, wildlife refuges, libraries, laboratories, factories, and businesses.

Elementary Montessori children typically suggest and organize their own field trips for the class or a small group of children who share a common interest. By initiating a proposal, developing the plan, making all arrangements, and carrying them through, they gain a great sense of individual power and dignity.



(Above) Environmental education or Practical Life skills? Perhaps a bit of both.

Social Skills, Character, Ethics, & Community Service

"It is at this age also that the concept of justice is born, simultaneously with the understanding of the relationship between one's acts and the needs of others. The sense of justice, so often missing in man, is found during the development of the young child."

— Dr. Maria Montessori

The elementary classroom is not only a community of close friends, it is a source of countless "life lessons" in social skills, everyday courtesy, and ethics. Montessori noted that elementary children not only enjoy each other's company, they naturally form little social groups of friends, each with its own internal hierarchy and rules of conduct.

"It is self-evident that the possession of and contact with real things bring with them, above all, a real quantity of knowledge. Instruction becomes a living thing. Instead of being illustrated, it is brought to life. In a word, the outing is a new key for the intensification of instruction ordinarily given in the school."

There is no description, no image in any book that is capable of replacing the sight of real trees, and all of the life to be found around them, in a real forest. Something emanates from those trees which speaks to the soul, something no book, no museum is capable of giving."

— Dr. Maria Montessori



(Above) Elementary students commonly organize their assignments and receive feedback from their teachers and parents in notebooks like the one this student is holding.

The elementary classroom takes advantage of this tendency by operating as a small social community in which children learn to work together, resolve conflicts peacefully, encourage and acknowledge each other, and work as committees to complete complex tasks. Dr. Montessori also noted that the elementary years are a time when children develop their sense of justice and moral reasoning. Most

classes go beyond simple lessons in grace and courtesy to begin a serious exploration of moral philosophy. It is common to find Elementary Montessori students discussing difficult questions such as: *Why are some things considered a sin? What happens to us when we die? Why is it important for the fortunate to lend a hand to the poor? If kindness is so important, what can I do when I feel angry?*

During the elementary years, Montessori children begin to address the question of aid to the elderly, handicapped, critically ill and economically disadvantaged. They explore international issues from the perspective of building bridges toward world peace. They study ecology, wildlife preservation, and conservation of natural resources. Elementary classes almost always become directly engaged in acts of charity: gathering food, toys, and clothing for the poor; raising funds for local shelters; assisting in food kitchens for the homeless. Through personal experience, investigation, research, and exploration of these themes in literature and film, students make their first efforts at trying to understand war, violence, poverty, and the crisis of the homeless. More importantly, they struggle

with what they, as individuals, can do to make the world a better place.

It is quite common to find elementary classes engaged in community service projects. Classes often recycle and prepare compost. They will commonly clear streambeds, plant wildflowers, and participate in erosion-control programs. Most will raise funds for charities or to support a child through one of the overseas aid organizations.

One thing that Montessori Elementary students tend to do is write letters; hundreds of lawmakers and decision-makers in industry know what Montessori students think about a wide range of social and environmental issues. These students talk about the issues of the day with their friends and families.

Through these and many other efforts, we begin to introduce Montessori children to moral questions in personal relationships and encourage the awakening of their social conscience. They engage in a gradual process of self-discovery and start to ask the larger questions: *What do I do well? What do I stand for? What is the purpose of my life?*

Is Montessori opposed to homework, tests, and grades?

Many parents have heard that Montessori schools do not believe in homework, grades, and tests. This is a misunderstanding of Montessori's insights.

Most Montessori schools do not assign homework at all below the elementary level. When it is assigned to older children, it rarely involves page after page of busywork; instead, Montessori students pursue meaningful, interesting assignments that expand on the topics that they are studying in class. Many assignments invite parents and children to work together.

A Student's Story: What Not Getting Graded Has to Do with It

by Wendy Smith

As a product mostly of liberal, private school education, my experiences have varied drastically from those of most American school children. One kind of experience stands out from the rest because it has continued to make an impact on my life: my time in a Montessori school from kindergarten through fifth grade.

The Montessori Method teaches children to be free and independent thinkers and emphasizes the joy of learning. But the most valuable idea received was the belief that I was a unique and important person. I was given a wonderful sense of worth, while at the same time I was taught to recognize the worth in everyone else. There were several reasons why this idea could grow: I was never compared to other children, my teachers urged me to develop my individual talents and skills, and mostly there was no grading system.

These experiences helped me to make the transition to a new school. After graduating (reluctantly!) from fifth grade, I went on to another private school — much more structured than my Montessori school, but still by no means typical (like “traditional” public school). My new school did use a grading system, and this was really difficult for me at first. Failing a math test when I had never failed at anything before was a bitter pill to swallow. It knocked me flat! But with the strong self-concept that Montessori had given me, I was able to find the courage inside to recognize that this was OK, that everyone has to fail sometimes in their lives. I concluded that I was going to have to work harder at math, but that I was not a failure as person. I doubt very much that I could have bounced back as quickly had it not been for my Montessori experience. It didn’t take long for me to find my place at my new school. I soon noticed that the same basic ideals were emphasized: the importance of the individual and the focus on the fun of learning. Both of these things prepared me for what was to come next.

Faced with my first year of public high school, I had never felt more terrified. Coming from a class of twenty-three students, I was convinced that I’d never be able to handle a freshman class of three hundred. In the first month or so, I panicked when a test was given. Anything lower than a B+ made me think that the



A student writes out the day's schedule in a class at the Montessori School of Raleigh.

world was coming to an end! But again, I think because of the positive self-image I experienced in my early years, I came to feel that I could handle any challenge given to me in high school. And those beginning years have also prepared me for college.

It is amazing to me that the type of schooling I received when I was younger can still have such an impact on my life today. My Montessori education gave me confidence — by not using a grading system and by not comparing me to the other children. This allowed me to enjoy learning everything, even subjects that were difficult for me. Learning was always a positive experience, never frightening. Though at first I was intimidated by the evaluation systems of those later schools, after only a short time I was able to adopt them and feel even more assured. I owe that security and sense of self-worth mostly to my early education. It has helped me in the past, and I am certain it will continue to do so in the future.

Wendy Smith attended a Montessori school in the Washington, D.C. area. She went on to Washington University in St. Louis, Missouri. Wendy's reflections first appeared in the Summer, 1990 edition of Montessori Life, the Journal of the American Montessori Society. Reprinted with permission.

Homework should never become a battleground between adult and child. One of our goals as parents and teachers is to help children learn how to get organized, budget time, and follow through until the work is completed. Ideally, home challenges will give parents and children a pleasant opportunity to work together on projects that give both parent and child a sense of accomplishment. They are intended to enrich and extend the curriculum.

Montessori challenges children to think, explore, and pursue tangible projects that give them a sense of satisfaction. Homework is intended to afford students the opportunity to practice and reinforce skills introduced in the classroom.

Moreover, there is a certain degree of self-discipline that can be developed

within the growing child through the process of completing assignments independently.

For example, many elementary classes will send home a packet of "At-Home Challenges" for each age group in the class. The children have an entire week, through the next week-end, to complete them. The following Mondays, teachers sit down with the children to review what worked, what they enjoyed, and what they found difficult or unappealing.

Depending on the child's level, assignments normally involve some reading, research, writing, and something tangible to accomplish. They may be organized into three groups:

1. **Things to be experienced**, such as reading a book, visiting a museum, or going to see a play;

2. **Things to learn**, stated in terms of skills and knowledge, such as *See if you can learn how to solve these problems well enough so that you can teach the skill to a younger student*; and

3. **Products to be submitted**, such as a play, essay, story, experiment, or model.

When possible, teachers will normally build in opportunities for children to choose among several alternative assignments. Sometimes teachers will prepare individually negotiated weekly assignments with each student.

Whenever students voluntarily decide to learn something, they tend to engage in their work with a passion and attention that few students will

Homework ... Montessori Style

Here are just a few examples of assignments that students and families have found to be both interesting and challenging:

- ✿ Perform an act of charity or extraordinary kindness.
- ✿ Plan and prepare dinner for your family with little or no help from your folks.
- ✿ Plan and prepare a dinner for your family typical of what the ancient Greeks might have eaten.
- ✿ Read together books that touch the soul and fire the imagination. Discuss the books that the children are reading in class on Fridays.
- ✿ Visit a church or synagogue of a different faith than yours. Meet the rabbi, priest, or minister and learn as much as you can about this other faith.
- ✿ Go to a boatyard and learn what you can about different kinds of boats, their purpose, cost, advantages and disadvantages.
- ✿ Buy some stock and follow its course over time. Pretend that you have a thousand dollars to invest ... ten thousand, a million.
- ✿ Calculate how many square feet of carpet it would take to cover your entire house. Convert this number into square yards. Call two carpet dealers. What kinds of carpet do they offer and what would it cost to carpet your house?
- ✿ Build a model of the floor plan of your house out of cardboard, one floor at a time. Be as careful and exact as you can.
- ✿ Develop a pen pal in another Montessori school.
- ✿ Prepare a list of all the things that you would like to do with your life: career, cities to visit, mountains to climb, things you want to learn, etc.
- ✿ Teach your dog a new trick.
- ✿ Build a model of the Parthenon, an aqueduct, or some other historical structure.
- ✿ Plant a garden, tree, or some bulbs around your house.
- ✿ Write a play and perform it with some friends for your class.
- ✿ Make puppets with your folks, build a puppet theater, and put on a performance.

ever invest in tasks that have been assigned.

Providing Structure: Setting High, Individually Tailored Expectations

Individually tailored expectations doesn't mean that students can do whatever they want academically. They cannot elect whether or not to learn to read. Montessori students have to live within a cultural context, which for us involves the mastery of skills and knowledge that we consider basic.

Montessori gives students the opportunity to choose a large degree of what they investigate and learn, as well as the ability to set their own schedule during class time

Montessori children normally work with a written study plan for the day or week. It lists the basic tasks that they



(Above) An Elementary Montessori student taking her weekly spelling test.

- ✿ Learn about magic and master a new trick.
- ✿ Build a bridge out of popsicle sticks held together with carpenter's glue that will span a three-foot chasm and support several bricks.
- ✿ Interview your grandparents about their childhood. Write a biography or share what you learn with your class.
- ✿ Using one of the better books on children's science projects, select an experiment or project, carry it out, and prepare a report that documents what you did.
- ✿ Build a model sailboat using different types of sail plans. Race them on a pond with your class.
- ✿ Select a city somewhere in the world where you have never traveled. Find out everything that you can.

- ✿ Learn something new and teach it to someone in your class.
- ✿ Meet a real artist and visit her studio.
- ✿ Learn first aid.
- ✿ Prepare a time line of the presidents of the United States, along with picture cards, name tags, and fact cards. Study until you can complete the timeline on your own.
- ✿ Make your own set of constructive triangles, golden beads, or some other familiar Montessori material.
- ✿ Using 1 cm. as a unit, build out of clay, wood, or cardboard pieces to make up units, tens, hundreds, thousands, ten thousands, hundred thousands, millions up to one billion.
- ✿ Prepare a scale model of the solar system in which the distance from the sun to Pluto will be two miles. Prepare carefully measured models of the planets and sun and calculate the distance that each will need to be placed on the scale away from the sun.



need to complete, while allowing them to decide how long to spend on each and what order they would like to follow. Beyond these basic individually tailored assignments, children explore topics that capture their interest and imagination and share them with their classmates.

Tests

Montessori children usually don't think of our assessment techniques as "tests" so much as "challenges."

Early Childhood Montessori teachers observe their children at work or ask them to teach a lesson to another child to confirm their knowledge and skill.

Most Elementary Montessori teachers will give their students informal individual oral exams or have the children demonstrate what they have learned by either teaching a lesson to another child or by giving a formal presentation. The children also take and prepare their own written tests to administer to their friends.

Rather than being graded using a standard letter-grade scheme, students are normally working toward mastery.

Standardized Tests

Very few Montessori schools test children younger than the first or second grades; however, most Montessori schools regularly give elementary students quizzes on the concepts and skills that they have been studying. Many schools ask their older students to take annual standardized tests.

While Montessori students tend to score very well, Montessori educators frequently argue that standardized testing is inaccurate, misleading, and stressful for children. There are many issues, including how well a given test captures a sense of someone's true skills and knowledge.

Any given testing session can be profoundly affected by the student's emotional state, attitude, and health, and to a large degree, what they really demonstrate is how well a student knows how to take this kind of test. Montessori educators further argue that formal tests are unnecessary, since any good teacher who works with the same children for three years and carefully observes their work, knows far more about students' progress than any paper-and-pencil test can reveal.

The ultimate problem with standardized tests in our country is that they have often been misunderstood and misinterpreted in other schools. Tests can be fairly useful when seen as a simple feedback loop, giving both parents and school a general sense of how students are progressing.

Although standardized tests may not offer a terribly accurate measure of a child's basic skills and knowledge, in our culture, test-taking skills are just another Practical Life lesson that children need to master.

Reporting Student Progress

Because Montessori believes in individually paced academic progress and encourages children to explore their interests rather than simply complete work assigned by their teachers, we don't assign grades or rank students within each class according to their achievement. Parents, students, and guides give and receive feedback in several different ways:

Student Self-Evaluations: At the elementary level, students will often prepare a monthly self-evaluation of their previous month's work. When completed, they meet with the teachers, who will review it and add their comments and observations. Students also prepare self-evaluations of the past three month's work: what they accomplished, what they enjoyed the most, what they found most difficult, and what they would like to learn in the three months ahead.

Portfolios of Student Work:

In many Montessori schools, two or three times a year, teachers (and at the elementary level, students) and sometimes parents go through the students' completed work and make selections for their portfolios.

Student/Parent/Teacher

Conferences: Once the students' three-month self evaluations are complete, parents, students, and teachers will hold a family conference two or three times a year to review their children's portfolios and self-evaluations and go through the teachers' assessment of their children's progress.

Narrative Progress Reports:

Typically once or twice a year Montessori teachers will prepare a written narrative evaluation of the student's work, social development, and mastery of fundamental skills.

Some final thoughts in closing ...

We invite you to take a close look at the kind of person your child has become today at four or five and ask yourself how would you like her to be when she's eighteen? By what set of values do you hope she will live? Do you hope that she will still love school and be excited about learning? If so, then you have laid the right foundation by sending her to Montessori thus far. Like our families and so many millions of others like us, you've taken the first step. And now the question is what's next? We invite you to follow those of us who have gone before down the Montessori path. We have discovered it to be the best decision that we could have made for our children. What your son or daughter has experienced thus far is just the first step in the journey, and the best is yet to come.