

Joyful Scholars: Montessori for the Elementary years

Tuesday, 19 September 2006 22:52 | Written by Tim Seldin

Should we stay, or is this the right time to move?

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, to many parents first grade seems to be the logical time to make the transition from Montessori to the "real world."

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 give a child a better preparation for college?

Although each family will analyze the issues in their own way, each 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 94 years in thousands of Montessori schools around the world. Montessori has enjoyed the support of some of the leading personalities of this century, 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, Ann Frank (who was a Montessori student), and David Elkind, just to name a few.

One elementary teacher responded to her parents' fears this way,

"Many parents express the concern that Montessori at the elementary level may not prepare them for the "real world." I'm not sure exactly 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 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 encyclopedia, atlases, reference books, maps, microscopes and 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."

A lifetime of personal experience has taught me that Montessori works, but I understand how much courage it takes to risk following a different path from traditional education. What if our children were to not get into the college of their choice because they went to a Montessori school.

If you are facing this decision, I would suggest that you take a good look at your school's elementary program. Although at first you may tend to focus on the teachers, try to pay close attention on the children themselves.

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

What makes Montessori elementary different?

With so much going on, 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 this seemingly random, yet obviously purposeful activity, is basic to the independent learning and self-directed activity of the Montessori approach.

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

"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 wouldn't want this to continue in the elementary years?"

Judi Charlap, Elementary Montessori Guide, The New Gate School, Sarasota, Florida

Basic Components of the Elementary Montessori Program

Author's Note: For this article I 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, I 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 between 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 judgment 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

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

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 6 to 9 (grades 1-3 in the United States) and ages 9 to 12 (grades 4-6). 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 that the older ones are engaged in
- 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 things best of all when we teach them to 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 September 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 who are given dittos 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 to form your children's circle of friends as they would find in a larger school, their friendships will tend to be closer and will last a lifetime.

The social life of the Montessori elementary is defined by the fact that 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 or information, or working together on group projects.

Parents are normally very involved at the elementary level as partners in supporting their children's education. They often come in to teach special lessons, take small groups out into the community for field trips, and help with celebrations and special trips.

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 of today would be lost.

The best elementary Montessori teachers are truly renaissance men and women; individuals who are equally interested in mathematics, the sciences, the arts, architecture, literature, poetry, psychology, economics, technology, and philosophy. But 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 absolutely magical!

Becoming an elementary Montessori teacher requires a full year of graduate study and thousands of 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, 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 (up to 80% of the school year) is spent on teaching the 'Basic Skills' of reading, 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 substance of one's education: science, history, the arts, great literature, world culture, politics, economics, and philosophy.

Montessori teaches for both the "basics" and cultural literacy.

Children are born curious and highly motivated to learn new things. Why is it that so many teachers bore their students with facts that must be memorized and forgotten once the test is passed, when children are so easily excited about the world. Why do so many schools continue to feed children intellectual pabulum when they are ready for real food for their intellects?

The Three Elements of the Elementary Montessori Curriculum

The elementary Montessori curriculum is highly enriched and challenging and 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 explore 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.

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

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 the 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 humanity'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*

"Education between the ages of six and twelve is not a direct continuation of that which has gone before, (although it is built upon that foundation). Psychologically there is a decided change in personality (within the child), and we recognize that nature has made this a period for the acquisition of culture, just as the former was for the absorption of environment.

We are confronted with a considerable development of consciousness... and there is an unusual demand on the part of the child to know the reason (why things work or why things are the way they are).

Knowledge can best be given where children are eager to learn, and this is the period when the seeds of learning can be sown, the child's mind being like a fertile field, ready to receive what will germinate into the culture of the adult community.

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. Our aim is not only to make the child understand, and still less to force him to memorize, but so to touch his imagination as to enthuse him to his innermost core. We do not want complacent pupils, but eager ones. We seek to sow life in the child rather than theories, to help him in his growth, mental and emotional as well as physical and for that we must offer grand and lofty ideas to the human mind.

If the idea of the universe is presented to the child in the right way, it will do more for him than just arouse his interest; for it will create in him admiration and wonder, a feeling loftier than any interest and more satisfying. But if neglected during this period, or frustrated in its vital needs, the mind of the child becomes artificially dulled, and henceforth will resist imparted knowledge. Interest will no longer be present if the seeds of learning are sown too late, but at six, children receive all items of culture enthusiastically. As the child grows older, these seeds will expand and grow. How many seeds should we sow? My answer is: "As many as possible!"

Dr Maria Montessori

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 in later years.

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.

The approach is largely based on library research, with children gathering information, assembling reports, teaching what they have learned to their fellows, 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 their teachers, Montessori students are taught how to use reference materials, libraries, and even 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 by trial, error, and discovery.

The advanced elementary Montessori materials move on to 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 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 although learning the right answers may get children through school, but learning how to learn will get them through life!

An Invitation to A Lesson

As many schools prove on a daily basis, it is possible to make the most fascinating subject matter boring.

When teachers go on and on about something long after they have lost their student's interest, and the best lesson that they have taught is that this topic is boring and to be avoided in the future if one can. A Montessori teacher will invite her students to a lesson, consciously trying attract and then capture their interest, knowing that when she tries to "sell" something, sometimes 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 8 of you who are interested in learning about crustaceans like my friend the lobster and how they live. If you are interested, you may join me." She invites her students to voluntarily come over for a lesson, knowing that there will be some days when no child will come

"The elementary Montessori teacher is a storyteller. She can find something in the environment that she hopes to get across to her children and develops a whole story or experience to draw them in. The process is typically magical to watch."

*Valadia Wise, Headmistress,
Henson Valley Montessori School, Camp Spring,
Maryland*

"Our teachers don't just teach from books. They use first hand experience, so we learn things that we would not ordinarily learn and learn them in a way so that we understand and remember."

*Willy Harris, Montessori Student,
Prince George's County Public Schools, Maryland*

Can Students Do Whatever They Want?

"What I really loved in the elementary level was that the teachers really sought to give the kids their own choice on what they were going to do for the day and sometimes that endeavor would go on for weeks, and the teachers would support that."

*Bill Brennan, Montessori Parent,
The Barrie School, Silver Spring, Maryland*

Sometimes, because Montessori places so much emphasis on cultivating children's sense of curiosity and wonder, parents may get 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 is based on respect for fellow human beings, the child, her parents, the teacher, her classmates, and the world. We want to teach children to extend the same respect back in return.

Montessori teachers feel that if we can focus on what is good and decent within each child, that if we treat children with far more trust and respect than they may have earned, that if we instill in our students the value of self-discipline and hard work, and encourage them to be at peace with themselves, then we can literally help children to develop a positive attitude and approach to life.

Montessori helps children learn how to learn, by which we mean that we teach them to focus their attention, come into a setting willing to listen, ready to learn, and able to observe, reflect, and play with ideas until they figure out how things fit together, how they work, and practice new skills until they are mastered.

We operate from the understanding that intelligence, creativity and imagination can be found in every child. 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 not only pursue 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.

A lot of Montessori education is simply about learning how to learn, to observe life, to listen, to look for patterns and connections, to reflect on how things fit together and work.

But Montessori education is also about learning how to live. 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 a child, they are born motivated to learn. Anyone who has been around normal two-year-olds knows that they are fascinated by the world. External motivation is irrelevant. The true challenge 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....

We do not want children to be afraid of asking questions, because that's how we learn. Human beings have always learned as much from its mistakes as from success. 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, when they subtly communicate that their expectations have not been met, most children learn to quietly protect themselves by pretending that they do not care, or by not sharing things with their parents when they can avoid it. We need to help children to discover their own unique talents and capacity to create and discover.

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

The Integrated Montessori Curriculum

In the Montessori program subject matter is not separated in small little packages: 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. 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. For example, a small group of students who are interested in Greek mythology might build a model of ancient Athens, make and decorate their own Grecian vases to illustrate a particular story, prepare dioramas of a scene from mythology, or write and produce their own play for the rest of the class.

"When we study the history of Maryland, for example, we also look at the geography of the land to understand to understand what the original colonists had to work with when they came here, what the environment. We look also at the first Americans who lived here when they 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 Patrick, Elementary Montessori Teacher,
Henson Valley Montessori School, Camp Springs, Maryland*

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. Students are asked to write continuously, emphasizing at first the development of 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, for in this way they are clarifying their understanding of the structure of language that they absorbed unconsciously in the primary class. Montessori takes advantage of their natural interest, and gives children a great quantity and variety of material; for while they study the theory of grammar, spelling, and sentence analysis; they are also perfecting 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, and students are encouraged to write and share with others their stories, plays, poetry, and class newspapers.

Finally and most importantly, the key to the elementary language arts curriculum is the quality of the things Montessori gives children to read. Instead of insipid 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, 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 gain 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 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, they can determine the height of a tree, measure the dimensions of the buildings, or calculate how much we will feed our school 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 most elementary Montessori classes. Students use them 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 reasonable predictions in an engaging role playing scenarios. Students work with spreadsheets, graphs and logical analysis. Today they are also mastering desktop publishing, multimedia presentations, and 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 collections, 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 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 Man. 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 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 throughout 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 folksongs and dances in music, and explore traditional folk crafts in art. They read

traditional folk tales, literature, and reference materials about the cultures under study 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 meet candidates, discuss the issues of the day, and sometimes even volunteer in the campaign of a local candidate of their choice.

While Montessori schools are communities apart from the outside world in which children can first begin to develop their unique talents, they are also consciously connected to the local, national, and global communities. 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 questions, observe systematically, collect specimens, gather and analyze data, and conduct experiments.

Much of Montessori science takes place out of doors. 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 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 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 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 the international studies program, most Montessori schools offer a second language. The primary goal in a foreign language program is to develop conversational skills, vocabulary, the ability to understand basic written information in the second language, and an 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, but 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 like 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 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 preschool 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 often seem to be a cross between the Boy Scout Handbook and a high school Home Economics class. 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 checkbook, 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, first aid, baby-sitting skills, self-defense, and 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 beg 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 all sorts of trips over the years 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.

"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

Social skills, character, ethics, and 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.

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 are developing 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 questions like: "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 am feel angry?"

During the elementary years, Montessori children begin to seriously 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 a balance of personal experience, investigation and 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 can do as individuals to make the world a better place.

It is quite common to find elementary classes engaged in community service projects. Most classes 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 letters. They let lawmakers and decision-makers in industry know what they think about a wide range of social and environmental issues. They 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 to encourage the awakening of their social conscience. They engage in a gradual process of self-discovery and start to ask the larger questions: "What am I good at" "What do I stand for?" " What is the purpose of my life?"

Through this process they begin to integrate their personalities and take their first steps toward making a conscious contribution to the world. Dr. Montessori called such children the 'Erdkinder': the children of the earth.

Maria Montessori redefined the nature of the schools of tomorrow:

"Education represents the most powerful and universal force through which we can redirect humanity from a tendency towards violence to a tendency towards peace.

The word education must not be understood as teaching but of assisting the psychological development of the child.

It should no longer be thought of as imparting knowledge, but must take a new path that seeks to release the human potential within us all.

Education is not something that the teacher does. It is a natural process that develops spontaneously.

The true role of education is to interest the child profoundly in an external activity to which he will give all of his potential. "

The child is the forgotten citizen. If the nations of the world understood the potential within each child for good or evil, they would devote far more of their resources and wisdom to education."

Dr. Maria Montessori

Homework

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, but meaningful, interesting assignments that expand on the topics that the children are pursuing in class. Some assignments invite parents and children to work together.

Homework doesn't need to be boring! 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.

Homework should never become a battleground between adult and child. One of our goals as parents and teachers should be to help the 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.

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 weekend, 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 the 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 that you can teach the skill to a younger student. 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.

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.
- * How many square feet of carpet would it 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 square 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 a Montessori school across the USA or in another country.
- * 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, 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.
- * Learn about magic and master a new trick.
- * Build a bridge out of popsickle 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.
- * 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 timeline 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 triangle, 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.

Providing structure - setting high but individually tailored expectations

Whenever students voluntarily decide to learn something, they tend to engage in their work with a passion and attention that few students will ever invest in tasks that have been assigned.

This doesn't mean that they can do whatever they want academically, possibly electing to learn to read and possibly not. 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 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.

Montessori teachers typically observe their children at work or ask them to teach a lesson to another child to confirm their knowledge and skill. Most will also 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.

Students are normally working toward mastery, rather than being graded using a standard letter grade scheme.

Standardized Tests

Very few Montessori schools test children under the first or second grade, however most regularly give elementary students quizzes on the concepts and skills that they have been studying. Many schools ask 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. They point out that any good teacher who works with the same children for three years and carefully observes their work knows far more about their progress than any standardized test can reveal. Ultimately, the problem with standardized tests is that they have been misunderstood and misused. Many schools teach to the test or have been so caught up in the testing frenzy that students lose any joy in learning.

Used fairly, standardized tests have some value 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 do not assign grades or rank students within each class according to their achievement.

Student Self-evaluations: At the elementary level, students will often prepare a monthly self-evaluation of their school work. When completed, they will meet with the teachers, who will review it and add their comments and observations.

Portfolios of Student Work: In many Montessori schools, two or three times a year, students go through their completed work and make selections for their portfolios.

Elementary students prepare a self-evaluation of their work thus far: 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.

Student/Parent/Teacher Conferences: Once the student's 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.

Final Thoughts in Closing

"To me the best things about Montessori is the way we were able to just go around to pick the things that we needed freely, and that will really help me when I go further to be either an engineer or architect."

*Willy Harris, Montessori Student,
Prince George's County Public Schools, Maryland*

"Montessori helps children to be flexible, to be self disciplined, to be independent learners, to be self actualized adults And that what we all want, some to be able to say, whatever it is, I can figure it out, I can find the information, I can learn it, I can apply it. And that's what we're trying to develop in children in the elementary program."

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

"The teachers also teach peace, and we do that through the celebration of different cultures, but also through conflict resolution in the classroom when an opportunity arises to share with the class how are we going to solve this problem?"

*Kenna Murdter, Elementary Montessori Guide
The Barrie School, Silver Spring, Maryland*

And so, in closing, I invite you to take a close look at the kind of child that your child has become today at four or five, and ask yourself, what would you like her to be like when she's eighteen? By what set of values do you hope she will live? Do you pray that she will still love school and be excited about learning? If so, then you've laid the right foundation by sending her to Montessori thus far. Like my family and so many millions of others like us, you've taken the first step. And now the question is "what's next?"

I invite you to follow those of us who have gone before down the Montessori path, and 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.

Tim Seldin

"The respect level between the kids at Barrie, which is the school where two of my children have attended, is really something different from what my daughter experienced in public high school. Where in a public high school you always have to be careful about your own little space, in Barrie there was always a sense of community."

*Bill Brennan, Parent
The Barrie School, Silver Spring, Maryland*

"I fell that the Montessori class at the elementary level is truly setting a child up so they can deal with whatever comes after."

*Gwen Harris, Elementary Montessori Guide
Prince George's County Public Schools, Maryland*

"I would tell a parent that if their child is a kind of child who questions, who says why, why does this happen, or is excited about learning different things, not sitting down with a book, but actually asking why is it so cloudy today? That's the kind of child who is going to excel in a Montessori classroom."

*Kenna Murdter, Elementary Montessori Guide
The Barrie School, Silver Spring, Maryland*