

Montessori: An Alternative for Academic Success

Why is Montessori a Good Option for Academic Success in Hayward?

Golden Oak Montessori School will offer an alternative curricular approach to serve the diverse ethnic, socioeconomic, language, and educational backgrounds of Hayward students entering elementary school. We believe that the best way of meeting the challenges of this diversity is via a proven educational curriculum that has a track record of academic success—especially with minority students; small class size with individualized attention; and a commitment to community involvement.

The Montessori curriculum was originally developed to serve disadvantaged children and the philosophy of child-centered education has flourished worldwide because of its inclusiveness and its academic success. The idea of a Montessori *charter* school integrates the values of public education with the benefits of small teacher-to-student ratios; teachers who are both State certified and Montessori trained; Montessori hands-on materials designed for interactive learning; and a facility which allows collaborative projects such as gardening and specialized curricular offerings such as art, music, and environmental education. Montessori offers an approach that enriches “the whole child,” where the teacher is a resource, guide, and observer, and the child is an active learner.

The academic benefits of Montessori elementary education have been demonstrated, as in the recent Milwaukee study (*Science*, September 2006) of urban minority students comparing Montessori and traditional public education, which confirmed superior test scores for Montessori students. The National Institutes of Health ongoing study of learning disabilities (*Montessori Life*, Summer 2004) also highlights the Montessori approach’s success in teaching language, especially to Special Needs children. To see a more local example of public Montessori success, look at Eagle Peak, in Walnut Creek, which demonstrates academic triumph with its 2007 Academic Performance Index (API) rating of 10, ranking it among the top 10% of schools in the state, public or private.

The real success of Montessori may be the long-term achievements gained from the practiced skills of collaborative learning, time-management, and self-governance. The Milwaukee study cited above showed that students in the Montessori program “were more likely to respond to social problems with a positive assertive response” and “showed a more developed sense of community and social skills.” (*Science*, September 2006)

Performance at Golden Oak Montessori will focus equally on State academic standards and character development. Montessori emphasizes that children develop positive character traits while they learn. Students will be evaluated by

State competency exams, regular markers of academic progress and cognitive understanding, and by evaluations which focus on the following character traits of life-long learners: confidence and competence, independence, autonomy, intrinsic motivation, ability to handle external authority, social responsibility, good citizenship, and positive self-image.

We believe Golden Oak Montessori School's prospect of attracting and maintaining elementary students in our school district; Montessori's record of academic excellence; and ongoing community involvement will reflect positively on our Hayward School District.

Montessori Curriculum Overview

The core Montessori elementary and middle school curriculum integrates studies of the physical universe, the world of nature, and the human experience. In contrast to the traditional model in which the curriculum is compartmentalized into separate subjects with given topics considered only once at a given grade level, the main Montessori concepts are integrated throughout the ongoing curriculum. This means that younger students explore new concepts at a concrete level. When the same subjects are revisited in subsequent years, older students are able to understand and investigate familiar ideas more abstractly and in greater detail.

The integrated curriculum includes materials and activities for the development of understanding and skills in the following subjects:

- Mathematics (arithmetic, algebra, and geometry);
- Science (natural sciences, physical sciences, and environmental sciences);
- Language arts (including phonics, spelling, grammar, sentence analysis, foreign language, creative and expository writing, and literature);
- Social sciences (history, civics, economics, anthropology, sociology, geography);
- Cultural life (music, drama, and visual arts); and
- Physical education and health.

As shown in the alignment table below, the academic material covered in these lessons corresponds with the California State Standards of education and Montessori children, at the end of each multi-year curriculum cycle (grades 1-3, 4-6, 7-8), are at par with their educational cohort.

The integrated curriculum encourages children to make connections between topics—such as scientific discovery and historical context—and to put their educational skills to use. For example, a child working on a science experiment

understands the discovery of penicillin in a fungal mold. Taking her learning a step further, with the teacher's guidance, she then explores penicillin's possible impact on World War II when it was first widely used to treat soldiers wounded on D-Day. In the process, the child engages language, arts, and communications skills to document and share her findings.

In this way, the child guides the path of his/her learning by engaging special interests and his/her own learning style. The Montessori teacher functions as a critical resource in this process, always ensuring that the child's research and findings are valued and teaching the lesson that we live in an evolving universe where growth, development, and adaptation are essential for existence. The Montessori classroom is rich with resources to stimulate the child to explore deeper in order to understand their world more clearly—cultivating lifelong learning skills.

Montessori's Integrated Curriculum: The Cosmic Education

The integrated curriculum is the central guiding theme of Montessori education at the elementary and middle school level. The term "Cosmic Education" refers to the interrelatedness of humanity and the earth. It is both a philosophy and a guide for the development of an interdisciplinary curriculum. The concept of cosmic education goes beyond the "bits and pieces" approach. It presents a comprehensive whole picture of the world—a world in which the child sees himself as being a part.

The foundation for the integrated curriculum is an organizing vision of the universe on a grand scale, called Montessori's five Great Lessons:

- The Origins of the Universe;
- the Time Line of Life;
- the Time Line of Humans;
- the History of Mathematics; and
- the History of Language

These lessons set out a macrocosmic framework into which all the concepts, values, and academic lessons are organized. The central theme unifying all the Great Lessons is the concept of the order and interrelatedness of all elements of the cosmos. Dr. Montessori saw the grand scheme of the universe as not only awe-inspiring, but also as a great teaching tool.

Establishing the child's understanding of and appreciation for the great cycles of nature—which maintain harmony and order while allowing for change and development—underscores Montessori's core value of community stewardship. This theme of the evolutionary nature of the cosmos builds from the basic idea of

interrelatedness and shows the significance of each element and species, its contribution to the whole, and the responsibility this implies.

The impact and magic of these first lessons, while telling a grand story and setting the stage for later work, is also designed to involve the child—giving him a sense of importance, place, and responsibility in his world. So, the academic lessons also fundamentally cultivate the child's character.

History

The study of history starts prior to the dawn of life, with the development of the solar system, life on earth, the development of humans, early civilizations, and recorded history. The child sees the long development which preceded the arrival of humans and then the long labor of humankind to accomplish all that is here for us to enjoy today.

In general, curricular concepts are presented in an historical format—that is, they are presented in the order in which the concepts were developed by humankind. When possible, lessons are directly related to the person and era in which the concept, discovery, or invention emerged or occurred. Writing plays and acting out the drama of the discoveries, inventions and new concepts is an integral part of the curriculum. At every turn in the curriculum, students are active participants and the arts bolster the academic curriculum in creative and often unexpected ways.

Science

Science studies, including anatomy, physics, environmental studies, botany, and chemistry, are structured in such a way as to give the child a sense of classification so she can relate to the interrelated facts of the natural world. In fact, the system of classification approximates the order of evolution. The ultimate goal is to help the child cultivate an ecological view of life and a feeling of responsibility for the environment.

The first science experiments are designed to give the child the basic knowledge to understand the development of the solar system, the earth and its configurations, life on earth, and the needs of plants and animals. Although each individual life of earth (both plant and animal) seems to be selfishly fighting for its own survival, each takes only what it needs, and, in turn, makes its contributions to the ecological whole. The child sees these themes echoed in animal and plant communities in the classroom (such as the coexistence of various fish, snails, and corals) and in the outdoor classroom and garden (such as the co-dependence of fruiting trees on pollination by bees).

Throughout his/her scientific and historical education, the child sees the struggle of living communities to develop and maintain themselves and how this struggle benefits us today. The child begins to understand his/her role in the development of our living community, and cultivate the drive to understand it and the sense of responsibility to protect it.

Mathematics

Montessori materials for Mathematics (arithmetic, geometry, and algebra) continuously build on skills acquired at a concrete level, such as working with complex physical puzzles that concretely apply geometric principles. This continuous integrated curriculum allows the child to discover abstractions and their applications both in classroom math work (when studying geometry lessons) and in applying these concepts to other areas of study, such as chemistry or genetics.

The Golden Oak Montessori curriculum specifically addresses the Mathematics objectives set forth in the California State Standards. Number Sense and Operations and Geometry receive especially strong and effective emphasis in the Montessori curriculum. Students use a math textbook to guide core content skill development in relation to the California State Standards.

Language Arts

Language Arts (speaking, writing, reading, grammar, literature, and poetry) and the Performing Arts (fine art, music, and dance) are regularly integrated into the larger curriculum, allowing many opportunities for practice and reinforcement. For example, a history lesson on Abraham Lincoln may involve a class play which is written, directed, performed, and discussed by the students, raising important issues of political risk or the social climate around the Civil War. Or a botany lesson may involve experimenting with varieties of peas in the school garden, understanding the genetics of snap peas, learning the history of the monk Gregor Mendel and the discovery of genetics, and an art project illustrating the genetic linkages over generations. At every step of the integrated academic curriculum, children engage actively with the material and with each other.

Golden Oak Montessori requires strong competencies in the development of expository essays and comprehension of diverse types of reading material. Other areas of emphasis at the elementary level are expository writing and practicing the writing process; guided reading with non-fiction texts; comparison between texts; interpreting and using media for communication; and genre, author, and illustrator studies.

The Peace Curriculum: Cultivating World Citizens

The human relations curriculum uses the theme of "Fundamental Needs" as its organizing concept. Through this perspective, the child sees that the needs of humans in all places on earth and throughout history are the same. Ignorance of this concept of basic equality can breed fear and prejudice. A primary goal of Montessori education is to help children learn to live in peace and harmony with all people and to establish an innate awareness that they are citizens of the world and stewards of their own communities.

To this end, world geography, international cultural studies, second languages, ethnically diverse classrooms, and world history are central to the Montessori

curriculum. We want children to revere the dignity of the human spirit and to develop appreciation of differences in ability, in color, in culture, in beliefs, in thought, in ways of doing things, and in dress and in physical appearance.

The Montessori Peace Curriculum strives to convey a deep understanding that all people share the same fundamental needs and tendencies and that difference arises simply from different ways of addressing those needs. When the child can see that the needs of humans are the same, then he can respect and appreciate the variety of ways in which those needs are met. With this understanding of our human community, open-mindedness flourishes.

Outdoor Education

A primary focus of Golden Oak Montessori School is to expose children to the natural world and guide them towards an appreciation of our natural world so that they recognize their unique role as stewards of the earth. The school emphasizes outdoor experiences and will provide extensive outdoor activities as an integral part of the learning environment. These opportunities may involve an outdoor classroom where larger experiments, art projects, and performances can occur and a school garden to compliment the science, environmental education, and nutrition curricula.

Montessori Methodology

The Prepared Environment

A Montessori classroom is strikingly different from a traditional classroom: there are no rows of desks. Colorful materials are neatly organized into clustered areas—like a science area with materials to conduct experiments, reference texts, binders labeled with student's names charting their individual progress through the curriculum and housing their science reports, and a terrarium. Desks are interspersed with open space where work together on rugs, or cluster around a teacher sitting on the floor answering questions. Students are typically so actively engaged in their work that visitors are undisturbed and an atmosphere of quiet concentration prevails.

The Montessori classroom facilitates independent learning and exploration. The environment is designed to strike the imagination, to lead the student to abstraction, and to provide a system of information storage and retrieval. The Prepared Environment facilitates the child's exploration of the essential principles of all disciplines through sequenced order and aesthetic appeal.

Technology elements are integrated into classroom life. Children learn to use calculators, computers, and multimedia devices as part of their everyday experience. Throughout the curriculum, as appropriate, internet resources supplement research collected first-hand from resources found in the classroom and the community.

Montessori classrooms tend to fascinate both children and their parents. Typically, they are warm, bright, inviting, and filled with plants, animals, art, music, and books. There are curriculum centers with intriguing learning materials, such as three-dimensional mathematical models, colorful maps, botany charts, and collections of natural specimens. Each material stimulates curiosity and the five senses.

Multi-Age Learning Communities

Montessori education places children in multi-year age groupings. Children aged six to nine and nine to twelve, and thirteen and fourteen are placed in lower and upper elementary and junior high classes respectively. This multi-age grouping gives many advantages to learning, including the following:

- Children can progress through the curriculum at their own pace, guided by an individualized learning plan.
- The classroom serves accelerated students as well as remedial or English Language Learner students well because it is enriched with materials for an age-range, up to the level of challenging the interests of the most advanced students. It is acceptable and expected that students will excel in one area but may struggle with basic concepts in another. The three year curriculum gives each student space to grow at various levels while meeting end-criteria before moving forward.
- Younger students are constantly stimulated by the interesting work of older students.
- Older students serve as tutors and role-models, providing leadership experiences. Older students grow from helping younger students and reinforce their own knowledge by teaching others. They also learn to empathize with the needs of children who are younger than themselves, building important social and character skills.
- In a mixed-age class, teachers work with the same students for three years, forming an integral and close mentoring relationship.
- The class retains a high degree of continuity since the majority of students in each class returns the following year. This makes it easier to orient new children and individualize the ongoing curriculum for each student.

The multi-age classroom is a groundbreaking concept for developing community and supporting students of varying levels of academic and social development. By creating a bond between parents, teachers, and children, Dr. Montessori sought to create a closely-knit community where individuals could learn to be empowered; where children could learn to become contributing, sharing members of their school-family; where students could learn to care for younger children, learn from older people, and trust one another; and where children could find ways to be acceptably assertive rather than aggressive.

Individualized Learning

Montessori philosophy posits that for education to touch a child's heart and mind, the child must be learning because he/she is curious and interested. Montessori strives to make learning its own reward with each success fueling the desire to discover even more. To appeal to each child in this way, the curriculum is individualized according to the following principles:

- Individual learning styles, timetables, and capacities are respected. The child must develop herself; the adult acts as a resource and a catalyst for development.
- Students are given the opportunity to choose what to investigate and learn.
- The student is responsible for mastering basic skills and basic core knowledge. The student will follow a written study plan for each week, which is arrived at jointly by the teacher and the student.
- The student will be supported in planning an individual schedule for completing work.

Materials and activities are designed to support different learning styles and multiple intelligences, such as linguistic, mathematical, spatial, musical, kinesthetic, and interpersonal. Some children—kinesthetic learners—learn best by using their hands, taking measure of materials physically and thereby mapping them mentally. Others—linguistic learners—are especially attentive to verbal cues and have an innate ability to verbalize knowledge and to learn by listening attentively. Other children may benefit greatly from interacting with others, sharing, teaching, and collaborating to master the material; these are children with strong interpersonal learning skills. Montessori philosophy supports these differences and recognizes that children may also transition from one learning skill set to another as they develop during these formative years. One-size-fits-all teaching can fall short for these children.

Active Learning

Montessori materials are designed to stimulate the senses and engage students in active learning. Students are encouraged to pursue areas of particular interest to them, becoming “experts” and using all available resources, including internet and community sources to engage their curiosity.

The classrooms are prepared with Montessori-sourced materials, which are hands-on and encourage “experiential” learning, as opposed to the more traditional model of lecture and drill exercises, which are comparably passive. Repetition is accomplished by having a variety of materials with which to practice the same concept. It is this repetition—through active and multiple modes of learning—which leads to mastery of the concept.

Students learn by trial and error and by discovery. They learn to ask the right question, spontaneously engage in their own research, analyze what they have found, and draw their own conclusions. The extended work period, typically three

hours, offers both the time and resources for investigation and experimentation, using the internet, classroom library, and related indoor and outdoor materials, as well as opportunities to pursue research outside the classroom, in a community garden, the local library or museum, or by contacting outside experts. Throughout this process of discovery, students are not afraid to take risks and to learn constructively from their mistakes.

Students engage with the Montessori materials, which are designed to transition children from concrete understanding in early elementary to abstract thinking.

This means that children arrive at abstraction through their own creative process and their desire to understand. This is a joyful process of intellectual development, inner awareness, and creative thinking. Again, the child's education is forged on the path to discovery.

Active learning is the heart of Montessori education. Rather than present children with the "right information" and supply the "right answers" up front in the form of lessons and lectures, Montessori educators guide students to ask the "right questions" and help them to discover the answers for themselves. With this active approach, learning becomes its own reward and each success fuels the desire to discover more.

Role of the Teacher

Dr. Montessori observed that children learn most effectively through direct experience and the process of investigation and discovery. Thus, the basis of the Montessori method of instruction utilizes the prepared environment with specially selected materials and a teaching style that emphasizes observation and guidance rather than direct teaching and providing answers.

Montessori teachers consider themselves enlightened generalists, trained in the details of the Montessori curriculum and active participants in the child's development. Montessori teachers have four principal obligations:

- To awaken the child's spirit and imagination;
- To encourage the child's natural desire for independence and high sense of self-esteem;
- To help the child develop kindness, courtesy, and self-discipline that allows him to become a full member of society; and
- To help the child learn how to observe, question, and explore ideas independently.

The teacher rarely presents a lesson to more than a handful of children at one time, and these lessons are limited to brief, efficient presentations. The goal is to give the children a taste of the activity in order to capture their attention and spark their interest, intriguing them so that they will come back on their own to work with the materials. The teacher then stands by as an ongoing resource to facilitate the child's learning, direct him towards new challenges, and to ensure his mastery of important principles.