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# Montessori education

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*"Montessori" redirects here. For other uses, see [Montessori \(disambiguation\)](#).*

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The **Montessori Method of education**, developed by Dr. [Maria Montessori](#) , is a child-centered educational approach based on scientific observations of children from birth to adulthood. Dr. Montessori's Method has been used for over 100 years in many parts of the world.<sup>[*citation needed*]</sup>

It is a view of the child as one who is naturally eager for knowledge and capable of initiating learning in a supportive, thoughtfully prepared learning environment. It is an approach that values the human spirit and the development of the whole child—physical, social, emotional, cognitive.<sup>[2]</sup>

Although a range of practices exist under the name

"Montessori", the [Association Montessori Internationale \(AMI\)](#)  and the [American Montessori Society \(AMS\)](#) cite these elements as essential:<sup>[3]</sup><sup>[2]</sup>

- Mixed age classrooms; classrooms for children ages 2½ or 3 to 6 years old are by far the most common, but 0–3, 6–9, 9–12, 12–15, and 15–18 year-old classrooms exist as well.
- Student choice of activity from within a prescribed range of options.
- Uninterrupted blocks of work time, ideally three hours.
- A [constructivist](#) or "discovery" model, where students learn concepts from working with materials, rather than by direct instruction.
- Specialized educational materials developed by Montessori and her collaborators often made out of natural, aesthetic materials such as wood, rather than plastic.
- A thoughtfully prepared environment where materials are organized by subject area, within reach of the child, and are appropriate in size.
- Freedom of movement within the classroom.
- A trained Montessori teacher who follows the child and is highly experienced in observing the individual child's characteristics, tendencies, innate talents and abilities.



Children working on the phonogram moveable alphabet at a Montessori school<sup>[1]</sup>

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## History [edit]

Following her medical training, Dr. Maria Montessori began to develop her educational philosophy and methods in 1897, attending courses in [pedagogy](#) at the [University of Rome](#) and reading the educational theory of the previous two hundred years.<sup>[4]</sup> In 1907, she opened her first classroom, the Casa dei Bambini, or Children's House, in a tenement building in Rome.<sup>[5]</sup> From the beginning, Montessori based her work on her observations of children and experimentation with the environment, materials, and lessons available to them. She frequently referred to her work as "[scientific pedagogy](#)".

In 1901, Maria Montessori met Alice and [Leopoldo Franchetti](#) (Baroness & Baron) of [Città di Castello](#). They found many matching points between their work. Maria Montessori was invited to hold her first course for teachers and to set up a "Casa dei Bambini" at Villa Montesca, the home of the Franchettis in Città di Castello. Maria Montessori decided to move to Città di Castello where she lived for 2 years and where she refined her methodology together with Alice Franchetti. In that period, she published her book in Città di Castello, as mentioned before. The Franchetti Barons financed the publication of the book and the methodology had the name "Method Franchetti-Montessori", until the fascists ordered the cancellation of the baroness' name from the Method because she was Jewish. Alice Franchetti died in 1911 at 37.

Montessori education had spread to the United States by 1912 and became widely known in educational and popular publications. However, conflict between Montessori and the American educational establishment, and especially the publication in 1914 of a critical booklet, *The Montessori System Examined* by influential education teacher [William Heard Kilpatrick](#), limited the spread of her ideas, and they languished after 1914. Montessori education returned to the United States in 1960 and has since spread to thousands of schools there. Montessori continued to extend her work during her lifetime, developing a comprehensive model of psychological development from birth to age 24, as well as educational approaches for children



The [Scarborough School](#) at the [Edward Harden Mansion](#) in [Sleepy Hollow, NY](#), listed on the [National Register of Historic Places](#) as the site of the first American Montessori school in 1911

ages 0 to 3, 3 to 6, and 6 to 12. She wrote and lectured about ages 12 to 18 and beyond, but these programs were not developed during her lifetime.

Montessori education also spread throughout the world, especially southeast Asia including [India](#) where Maria Montessori [was interned during World War II](#).

## Montessori education theory [\[edit\]](#)

Montessori education is fundamentally a model of [human development](#), and an educational approach based on that model. The model has two basic principles. First, children and developing adults engage in psychological self-construction by means of interaction with their environments. Second, children, especially under the age of six, have an innate path of psychological development. Based on her observations, Montessori believed that children who are at liberty to choose and act freely within an environment prepared according to her model would act spontaneously for optimal development.

Montessori saw universal, innate characteristics in human psychology which her son and collaborator Mario Montessori identified as "human tendencies" in 1957. There is some debate about the exact list, but the following are clearly identified:<sup>[6]</sup>

- [Abstraction](#)
- Activity
- Communication
- Exactness
- Exploration
- Manipulation (of the environment)
- Order
- Orientation
- Repetition
- Self-Perfection
- Work (also described as "purposeful activity")

In the Montessori approach, these human tendencies are seen as driving behavior in every stage of development, and education should respond to and facilitate their expression.

Montessori education involves free activity within a "prepared environment", meaning an educational environment tailored to basic human characteristics, to the specific characteristics of children at different ages, and to the individual personalities of each child.<sup>[7]</sup> The function of the environment is to help and allow the child to develop independence in all areas according to his or her inner psychological directives. In addition to offering access to the Montessori materials appropriate to the age of the children, the environment should exhibit the following characteristics:<sup>[8]</sup>

- An arrangement that facilitates movement and activity
- Beauty and harmony, cleanliness of environment
- Construction in proportion to the child and her/his needs
- Limitation of materials, so that only material that supports the child's development is included



A Montessori classroom in the United States. 

- Order
- Nature in the classroom and outside of the classroom

## Planes of development [\[edit\]](#)

Montessori observed four distinct periods, or "planes", in human development, extending from birth to 6 years, from 6 to 12, from 12 to 18, and from 18 to 24. She saw different characteristics, learning modes, and developmental imperatives active in each of these planes, and called for educational approaches specific to each period.<sup>[9][10]</sup>

The first plane extends from birth to around six years of age. During this period, Montessori observed that the child undergoes striking physical and psychological development. The first-plane child is seen as a concrete, sensorial explorer and learner engaged in the developmental work of psychological self-construction and building functional independence. Montessori introduced several concepts to explain this work, including the absorbent mind, sensitive periods, and normalization.

Montessori described the young child's behavior of effortlessly assimilating the sensorial stimuli of his or her environment, including information from the senses, language, culture, and the development of concepts with the term "absorbent mind". She believed that this is a power unique to the first plane, and that it fades as the child approached age six.<sup>[11]</sup> Montessori also observed and discovered periods of special sensitivity to particular stimuli during this time which she called the "sensitive periods". In Montessori education, the classroom environment responds to these periods by making appropriate materials and activities available while the periods are active in each individual young child. She identified the following periods and their durations:<sup>[12]</sup>

- **Acquisition of language** —from birth to around 6 years old
- Interest in small objects—from around 18 months to 3 years old
- Order—from around 1 to 3 years old
- Sensory refinement—from birth to around 4 years old
- **Social behavior** —from around 2½ to 4 years old

Finally, Montessori observed in children from three to six years old a psychological state she termed "normalization".<sup>[13]</sup> Normalization arises from concentration and focus on activity which serves the child's developmental needs, and is characterized by the ability to concentrate as well as "spontaneous discipline, continuous and happy work, social sentiments of help and sympathy for others."<sup>[14]</sup>

The second plane of development extends from around six years to twelve years old. During this period, Montessori observed physical and psychological changes in children, and developed a classroom environment, lessons, and materials, to respond to these new characteristics. Physically, she observed the loss of baby teeth and the lengthening of the legs and torso at the beginning of the plane, and a period of uniform growth following. Psychologically, she observed the "herd instinct", or the tendency to work and socialize in groups, as well as the powers of reason and imagination. Developmentally, she believed the work of the second plane child is the formation of intellectual independence, of moral sense, and of social organization.<sup>[15]</sup>

The third plane of development extends from around twelve years to around eighteen years of age, encompassing the period of **adolescence** . Montessori characterized the third plane by the physical changes of **puberty** and adolescence, but also psychological changes. She emphasized the psychological instability and difficulties in concentration of this age, as well as the creative tendencies and the development of "a sense of justice and a sense of personal dignity." She used the term "valorization" to describe the

adolescents' drive for an externally derived evaluation of their worth. Developmentally, Montessori believed that the work of the third plane child is the construction of the adult self in society.<sup>[16]</sup>

The fourth plane of development extends from around eighteen years to around twenty-four years old. Montessori wrote comparatively little about this period and did not develop an educational program for the age. She envisioned young adults prepared by their experiences in Montessori education at the lower levels ready to fully embrace the study of culture and the sciences in order to influence and lead civilization. She believed that economic independence in the form of work for money was critical for this age, and felt that an arbitrary limit to the number of years in university level study was unnecessary, as the study of culture could go on throughout a person's life.<sup>[17]</sup>

In short, four core aspects of montessori school include, practical life, sensorial, math, and language arts. Some smaller aspects that could be integrated into montessori schools include geography, art, and gardening.

## Education and peace [\[edit\]](#)

As Montessori developed her theory and practice, she came to believe that education had a role to play in the development of world peace.<sup>[18]</sup> She felt that children allowed to develop according to their inner laws of development would give rise to a more peaceful and enduring civilization. From the 1930s to the end of her life, she gave a number of lectures and addresses on the subject saying in 1936,

Preventing conflicts is the work of politics; establishing peace is the work of education.<sup>[19]</sup>

She received a total of six nominations for the [Nobel Peace Prize](#) in a three-year period: 1949, 1950, and 1951.<sup>[20][21]</sup>

## Education practices [\[edit\]](#)

### Infant and toddler programs [\[edit\]](#)

Montessori classrooms for children under three fall into several categories, with a number of terms being used. A *nido*, Italian for "nest", serves a small number of children from around two months to around fourteen months, or when the child is confidently walking. A "Young Child Community" serves a larger number of children from around one year to 2½ or 3 years old. Both environments emphasize materials and activities scaled to the children's size and abilities, opportunities to develop movement, and activities to develop independence. Development of independence in toileting is typically emphasized as well. Some schools also offer "Parent-Infant" classes, in which parents participate with their very young children.<sup>[22]</sup>



White Pine Montessori School in [Moscow, Idaho](#), [US](#)

### Preschool and kindergarten [\[edit\]](#)

Montessori classrooms for children from 2½ or 3 to 6 years old are often called Children's Houses, after Montessori's first school, the Casa dei Bambini in Rome in 1906. This level is also called "Primary". A

typical classroom serves 20 to 30 children in mixed-age groups, staffed by fully trained teachers and assistants. Classrooms are usually outfitted with child-sized tables and chairs arranged singly or in small clusters, with classroom materials on child-height shelves throughout the room. Activities are for the most part initially presented by the teacher, after which they may be chosen more or less freely by the children as interest dictates. Classroom materials usually include activities for engaging in practical skills such as pouring and spooning, washing up, scrubbing tables and sweeping. Also materials for the development of the senses, math materials, language materials, music, art and cultural materials, including more science based activities like 'sink and float', Magnetic and Non magnetic and candle and air. <sup>[23]</sup>

Activities in Children's Houses are typically hands on, tactile materials to teach concepts. For example, to teach writing, students use sandpaper letters. These are letters created by cutting letters out of sandpaper and placing them on wooden blocks. The children then trace these letters with their fingers to learn the shape and sound of each letter. Another example is the use of bead chains to teach math concepts, specifically multiplication. Specifically for multiples of 10, there is one bead that represents one unit, a bar of ten beads put together that represents  $1 \times 10$ , then a flat shape created by fitting 10 of the bars together to represent  $10 \times 10$ , and a cube created by fitting 10 of the flats together to represent  $100 \times 10$ . These materials help build a concrete understanding of basic concepts upon which much is built in the later years.

## Elementary classrooms <sup>[edit]</sup>

Elementary school classrooms usually serve mixed-age 6- to 9-year-old and 9- to 12-year-old groupings; 6- to 12-year-old groups are also used. Lessons are typically presented to small groups of children, who are then free to follow up with independent work of their own as interest and personal responsibility dictate. Montessori educators give interdisciplinary lessons examining subjects ranging from biology and history to theology, which they refer to as "great lessons." These are typically given near the beginning of the school term and provide the basis for learning throughout the year. <sup>[24]</sup>

Lessons include work in language, mathematics, history, the sciences, the arts, etc. Student-directed explorations of resources outside the classroom are integral to the education. <sup>[25]</sup> Montessori used the term "cosmic education" to indicate both the universal scope of lessons to be presented, and the idea that education should help children realize the human role in the interdependent functioning of the universe.

## Middle and high school <sup>[edit]</sup>

Montessori education for this level is less well-developed than programs for younger children. Montessori did not establish a teacher training program or a detailed plan of education for adolescents during her lifetime. However, a number of schools have extended their programs for younger children to the middle school and high school levels. In addition, several Montessori organizations have developed teacher training or orientation courses and a loose consensus on the plan of study is emerging. Montessori wrote that, <sup>[clarification needed]</sup>

The essential reform of our plan from this point of view may be defined as follows: during the difficult time of adolescence it is helpful to leave the accustomed environment of the family in town and to go to quiet surroundings in the country, close to nature. <sup>[26]</sup>

Many Montessori schools for adolescents 12–18 are set in rural locations.

## Studies <sup>[edit]</sup>

Lillard (2017)<sup>[27]</sup> reviews recent research on the outcomes of Montessori education. A 2006 study published in *Science magazine* found that "when strictly implemented, Montessori education fosters social and academic skills that are equal or superior to those fostered by a pool of other types of schools."<sup>[28]</sup> The results should be viewed with caution due to the relatively small sample size, although the random lottery design of this study is commendable. Another study in the Milwaukee Public Schools found that children who had attended Montessori from ages 3–11 outperformed their high school classmates several years later on mathematics and science;<sup>[29]</sup> another found that Montessori had some of the largest positive effects on achievement of all programs evaluated.<sup>[30]</sup>

Some studies have not found positive outcomes for children in Montessori classrooms, but this might be due to the implementation of Montessori. For example, a 2005 study in a Buffalo public Montessori magnet school "...failed to support the hypothesis that enrollment in a Montessori school was associated with higher academic achievement."<sup>[31]</sup> Explicitly comparing outcomes of Montessori classrooms in which children spent a lot of time with Montessori materials, less time with the Montessori materials, or no time at all with the materials (because they were in conventional classrooms), Lillard<sup>[32]</sup> found the best outcomes for children in classic Montessori. Further research should take care to determine the fidelity of the program.

## Use of terminology [edit]

In 1967, the US Patent Trademark Trial and Appeal Board ruled that "the term 'Montessori' has a generic and/or descriptive significance."<sup>[33]</sup> Therefore, in the United States and most other countries, the term can be used freely without giving any guarantee of how closely, if at all, a program applies Montessori's work. The ruling has led to "tremendous variation in schools claiming to use Maria Montessori's methods."<sup>[34]</sup>

## Technology [edit]

With the development of mobile touchscreen devices, several Montessori activities were made into mobile apps for children<sup>[35]</sup> by companies such as Mobile Montessori © by Rantek Inc., L'Escapadou<sup>[36]</sup> and Les Trois Elles.<sup>[37]</sup>

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## External links [edit]

- [Association Montessori Internationale \(AMI\)](#)
- [Association Montessori International/USA \(AMI/USA\)](#)
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