

A photograph of a dirt path winding through a dense forest. Sunlight filters through the trees, creating a dappled light effect on the path and foliage. The path leads into the distance, flanked by thick green bushes and trees.

The Montessori Outdoor Environment

A not-quite-completed resource

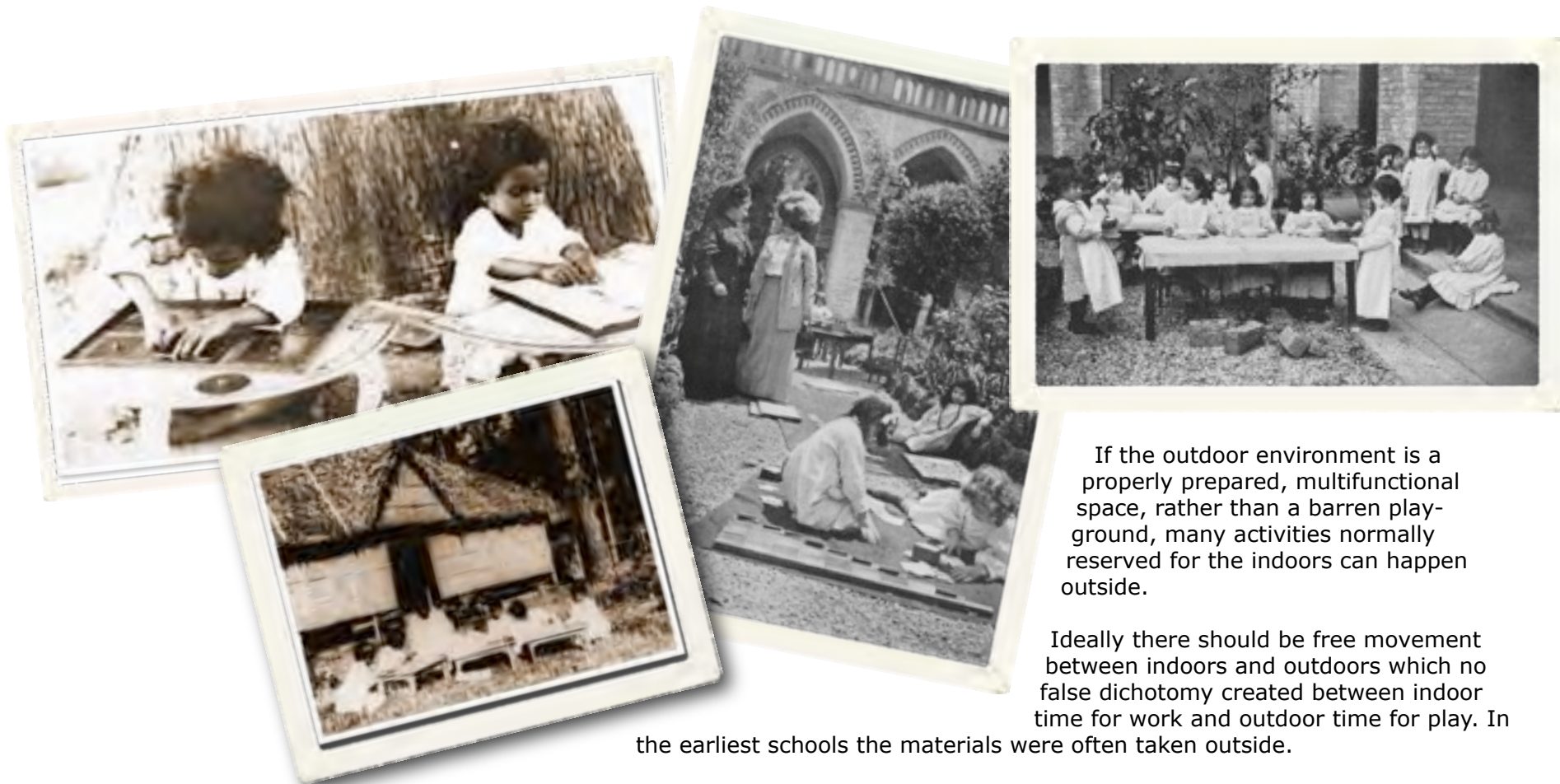
By Sharon Caldwell



The Montessori curriculum was never intended as an endless series of card materials. The design of the physical environment and the development of the curriculum are two sides of the same coin. A properly planned and prepared outdoor area allows the curriculum to become alive.

“Lushly naturalized school grounds offer particular advantages difficult or impossible to offer in other ways.”¹

¹ . Cosco, N., and Moore, R., Greening Montessori School Grounds by Design”.
© Montessori Foundation/Sharon Caldwell (2009)



If the outdoor environment is a properly prepared, multifunctional space, rather than a barren play-ground, many activities normally reserved for the indoors can happen outside.

Ideally there should be free movement between indoors and outdoors which no false dichotomy created between indoor time for work and outdoor time for play. In

the earliest schools the materials were often taken outside.

No activity needs to be reserved for indoors. Margot Waltuch described how the children in Sèvres drew lines on the ground to “walk on the line”.² Early photos of Montessori classrooms show the children working on tables and mats which have been carried outdoors.

“There was not a separation between outdoors and indoors. They were treated as one. No division should exist.”³

² Waltuch, M. The Casa of Sèvres, France.

³ . Waltuch, M. The Casa of Sèvres, France.



In the first "Children's House" in Rome we have a vast courtyard, cultivated as a garden, where the children are free to run in the open air – and, besides, a long stretch of ground, which is planted on one side with trees, has a branching path in the middle, and on the opposite side, has broken ground for cultivation of plants. This last, we have divided into so many portions, reserving one for each child. While the smaller children run freely up and down the paths, or rest in the shade of the trees, the possessors of the earth (children from four years of age up), are

sowing, or hoeing, watering or examining, the surface of the soil watching for the sprouting plants. It is interesting to note the following fact: the little reservations of the children are placed along the wall of the tenement, in a spot formerly neglected because it leads to a blind road; the inhabitants of the house, therefore, had the habit of throwing from those windows every kind of offal, and at the beginning our garden was thus contaminated. But, little by little, without any exhortation on our part, solely through the respect born in the people's mind for the children's labour, nothing more fell from the windows, except the loving glances and smiles of the mothers upon the soil which was the beloved possession of their little children."⁴

⁴ Maria Montessori, *The Montessori Method*, 161.



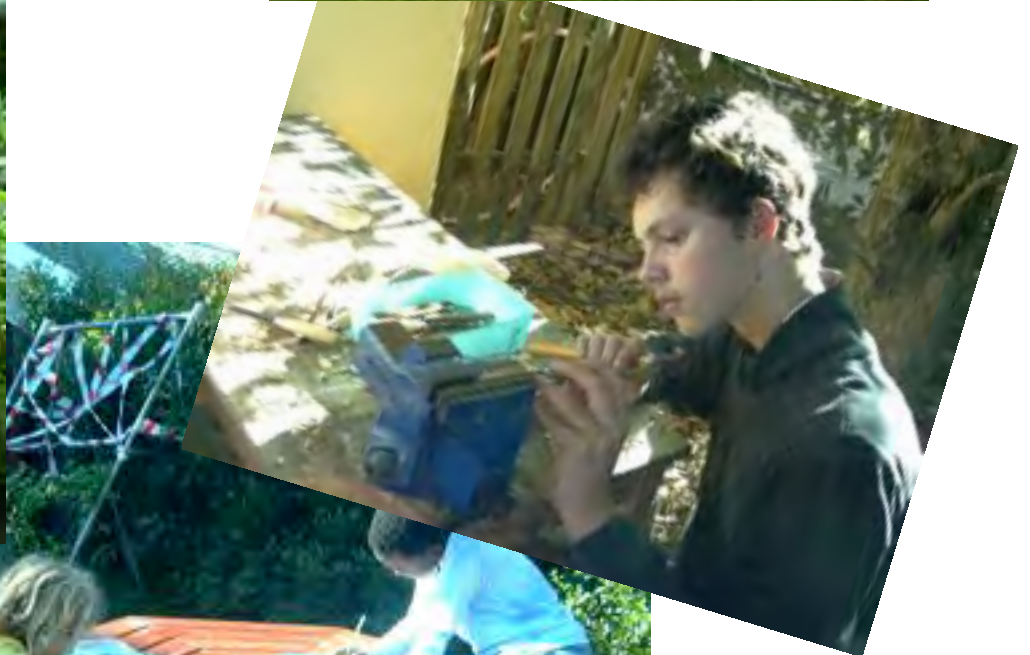
Pleasant spaces draw people
outdoors ...

perhaps to play a musical
instrument...



make a movie ...





read a story, carve some wood, draw a picture or hang up wet towels.



If you sit very still and silent you might see the mole push it's little heap of earth up through the grass.



“Overall, our findings indicate that exposure to ordinary natural settings in the course of common after-school and weekend activities may be widely effective in reducing attention deficit symptoms in children. Analyses of the sample as a whole indicated that green outdoor activities resulted in reduced children’s symptoms and had more positive aftereffects on symptoms than did activities conducted in other settings. Moreover, the advantage of green outdoor activities over other activities was consistent for children across a wide range of individual, residential, and case characteristics.”⁵

“I have had the great bounty of working at a school with 40 acres of natural woods. The children used that environment as well as the indoor one, when they wanted to. it was wonderful for me to see the impact on the children. They became very observant and at ease with handling nature - bugs and all!

In our community there is also another Montessori school, big new building with cinder block classrooms and a gymnasium but no real outdoors. This school enrolls many more students than ours. I do not understand how parents would pass on that 40 acres - I would not even consider it. Yet parents perceive that elementary is a time to get down to business and work - not flit around outside.

Even in our school, the parents just plain got nervous about anything seen as a waste of time. Many of my students had their days chockfull of activities: soccer, piano, etc. I wrote the following to the parents in my small attempt to help them understand how valuable “flitting” time can be. It’s all part of this same thing - valuing time that cannot be controlled or measured. Quality outdoor time is just that.”⁶

⁵. Frances E. Kuo, PhD and Andrea Faber Taylor A Potential Natural Treatment for Attention-Deficit/Hyperactivity Disorder: Evidence From a National Study

⁶ Robyn Zitnick “The Importance of Time Spent Outside.”

"Oftentimes in the afternoon we went out simply to sit and embroider to enjoy the sun and trees. No bell rang. No command was given. "Now it's time for this exercise or that exercise." Throughout the day, mental work and physical exercise were held in balance as a result of this constant contact with the seasons and the natural world."⁷



⁷ Waltuch, M. The Casa of Sèvres, France.
© Montessori Foundation/Sharon Caldwell (2009)



Sometimes we would go out, and other times nature would come in. When a grasshopper would hop among the tables, that would be the start of a research. Magnifying glasses were all around. Little flowers were also on each table, freshly cut, water changed daily, and labeled. Many times the children would pull them apart: "Where is the stamen?" Children planted seeds and subsequently made graphs of plant growth. We always allowed time for observing and questioning."⁸



If you work consciously to remove the false dichotomy between the indoor and outdoor environment you find a smooth integration. Children who find a bird's nest outside will bring it indoors to study and share, An upper elementary student will move smoothly from a math problem to a stint outdoors collecting flowers to decorate the classroom and back to ongoing research. An adolescent will use basil from the garden to make pesto to sell to parents and a five year old will carry the chicken outsides, spend time playing and come back inside to read. Work and play, indoors and out, are all part of the work cycle, all are part of the child's spontaneous activity which leads to self-construction. All is learning, all is playing, there simply is no difference.

(The) "...development of a nature-based Montessori curriculum depends largely on progressive pedagogical leadership to inspire sufficiently trained teachers to enthusiastically embrace the challenge of creating a place where pedagogy and designed landscape can be integrated."⁹



⁹ Cosco, N., & Moore, R., Greening Montessori School Grounds by Design."
© Montessori Foundation/Sharon Caldwell (2009)

Laughingly, we used to say, "There is never any bad weather, only wrong clothing."¹⁰



Mostly what is required is that we adopt new attitudes - that we abandon our preconceptions and most particularly our fears.

¹⁰ Waltuch, M. "The Casa of Sèvres, France."



"Actually, nature frightens most people. They fear the air and the sun as if they were mortal enemies. They fear the frost at night as if it were a snake hidden in the grass. They fear the rain as if it were fire. Civilized man is a kind of contented prisoner, and if now he is warned that he should enjoy nature for his own health, he does so timidly and with his eyes on the alert for any danger. To sleep in the open, to expose oneself to the winds and to the rains, to defy the sun, and to take a dip in the water are all things about which one can talk but which one does not always put into practice. Who does not run to close a door for fear of a draught. And who does not shut the windows before going to sleep, especially if it is winter or it is raining."¹¹



¹¹ Maria Montessori, *The Discovery of the Child*, 70.



"For a long time it was thought that nature had only a moral influence on the education of a child. Efforts were made to develop a sensible response to the marvels of nature, to flowers, plants, animals, landscapes, winds and light.

Later an attempt was made to interest a child in nature by giving him little plots of land to till. But the concept of living in nature is still more recent in a child's education.

As a matter of fact, a child needs to live naturally and not simply have a knowledge of nature.

The most important thing to do is to free the child, if possible, from the ties which keep him isolated in the artificial life of a city. Today child hygiene contributes to the physical education of children by introducing them to the open air in public parks and by leaving them exposed to the sun and water of a beach. Some timid attempts at freeing children from the excessive burdens of city life may be found in the permission given to children to wear simpler and lighter clothes, to go about in sandals or barefooted. ... when we reflect on this, it should be clear that normal and strong children should not only be able to resist an exposure to nature, but that they would be greatly benefited by it."¹²

¹² Maria Montessori, *The Discovery of the Child*, 69.



The impact of natural settings on children's emotional development and functional behavior is impressive and promising.¹³

Natural surroundings can "positively affect cognitive functioning, improve attention functioning and thereby reduce symptoms for children with attention deficits."

In modern society children do not spend enough time outdoors, "neither moving their bodies in sustained moderate-to-vigorous physical activity ... nor interacting with their surroundings and each other in ways that insure their proper physiological, psychological, and social development."

¹³ Cosco, N., & Moore, R., Greening Montessori School Grounds by Design."

A living garden



Living gardens are unpredictable, providing ample learning possibilities.

"Environments that are bland and bare or lack opportunities for hands-on activities become boring. Such environments actually provoke antisocial behavior in children and are not conducive to learning."¹⁴

The children's garden should be a sustainable ecosystem which provides opportunities for observing nature. "Play" areas should not be separated from the "learning" area.

The outdoor area should be designed to promote a holistic development integrating physical, intellectual, social and emotional development.

The successful outdoor space is "deliberately designed and prepared for engaging teachers and learners across the curriculum."¹⁵



¹⁴ Cosco, N., & Moore, R., Greening Montessori School Grounds by Design."

¹⁵ Cosco, N., & Moore, R., Greening Montessori School Grounds by Design."

Note the difference between the free-standing climbing frame (right) in a barren sand-surround, and the climbing frame which was deliberately designed to take the children up into the tree canopy, bringing them into close contact with nature. The first one provides multiple play opportunities, but the children using this structure will soon become bored. The simpler structure, built around a living tree allows children the opportunity to see insects and birds up close, and to experience the cycles of nature, in way that would normally be out of their range of sight, as well as providing a peaceful and calming place for quiet conversation and contemplation. The multi-level "treehouse" at Nahoon Montessori School was a real extension of the classroom.





One way to link outside and inside learning is by providing books and card materials which allow children to research their outside find. At NMS for example a range of books on local insects, birds and plants enable children to identify what they saw outside. Indoor materials, such as three apart cards for herbs growing in the garden, enabled children to outside to find leaves to match the cards, which also provided links to sensorial (smelling) and practical life (crushing, tea making etc.) activities.







“If , for the physical life, it is necessary to have the child exposed to the vivifying forces of nature, it is also necessary for his psychical life to place the soul of the child in contact with creation, in order that he may lay up for himself treasure from the directly educating forces of living nature. The method for arriving at this end is to set the child at agricultural labour, guiding him to the cultivation of plants and animals.”¹⁶

¹⁶ Maria Montessori, *The Montessori Method* 155.
© Montessori Foundation/Sharon Caldwell (2009)

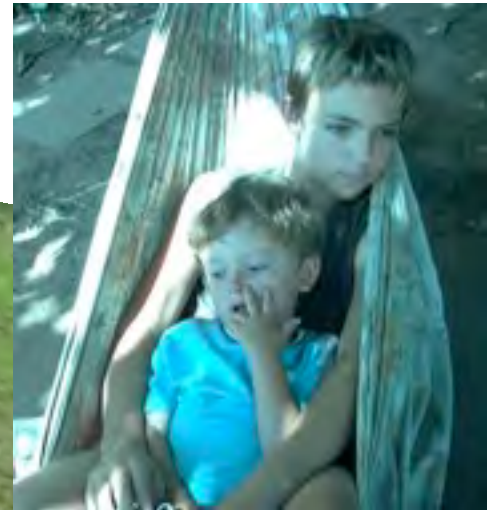
“Even while at the work, a sort of correspondence arises between the child’s soul and the lives which are developed under his care. The child loves naturally the manifestations of life: Mrs. Latter tells us how easily little ones are interested even in earthworms and in the movement of the larvae of insects in manure, without feeling that horror which we, who have grown up isolated from nature, experience towards certain animals. It is well then, they develop this feeling of trust and confidence in living creatures, which is, moreover, a form of love, and of union with the universe.”¹⁷



¹⁷ Maria Montessori. *The Montessori Method* p.159.

A well planned outdoor space provides for quiet contemplation - alone or with others.

One of the results of freedom of movement between indoors and out is that children learn to self-regulate, seeking solitude when they need it.



“I have not yet been able to institute in Rome the breeding of animals, but in the “Children’s Houses” at Milan there are several animals, among them a pair of pretty little white American fowl that live in a diminutive and elegant chalet, similar in contraction to a Chinese pagoda: in front of it, a little piece of ground enclosed by a rampart is reserved for the pair. The little door of the chalet is locked at evening, and the children take care of it in turn. With what delight they go in the morning to unlock the door, to fetch water and straw, and with what care they watch during the day, and at evening lock the door after having made sure that the fowl lack nothing! The teaching informs me that among all the educative exercises this is the most welcome, and seems also the most important of all. Many a time when the children are tranquilly occupied in tasks, each at the work he prefers, one, two or three, set up silently and go out to cast a glance at the animals to see if they need care. Often it happens that a child absents himself for a long time and the teacher surprises him watching enchantedly the fish gliding ruddy and resplendent in the sunlight in the waters of the fountain.

One day I received from the teacher in Milan a letter in which she spoke to me with great enthusiasm of a truly wonderful piece of news. The little pigeons were hatched. For the children it was a great festival. They felt themselves to some extent the parents of these little ones, and no artificial reward which had flattered their vanity would ever have provoked such a truly fine emotion. Not less great are the joys which vegetable nature provides. In one of the “Children’s Houses” at Rome, where there was no soil that could be cultivated, there have been arranged, through the efforts of Signora Talmo, flower-pots all around the large terrace, and climbing plants near the walls. The children never forget to water the plants with their little watering pots.”¹⁸

¹⁸.. Maria Montessori. *The Montessori Method*, 158.



SOME READING

Geralyn Bywater McLaughlin, We Need More Sticks and Grass! We Need More Beauty! <http://www.communityplaythings.com/resources/articles/natureeducation/weneedmore.html>

Molly O'Shaughnessy, The Child and the Environment,

<http://www.freeplaynetwork.org.uk/playlink/exhibition/editorial/editorial2.htm> PLACES for PLAY: Exhibition Editorial By Bernard Spiegel, Nicola Butler and Karen Newell - [This article makes a good point about risk and negligence claims worth considering.]

Places for Play exhibition - <http://www.freeplaynetwork.org.uk/playlink/exhibition/index4.htm> - this is a great collection of photos - .

Spiegel Key Terms for Play <http://www.naturalearning.org/showcase/projects/southernpines.htm>

"Kids Don't Need Equipment, They Need Opportunity" by Ellen Ruppel Shell

Mary Rivkin : Outdoor Experiences for Young Children.

Nancy Wells : At Home with Nature : Effects of "greenness" on children's cognitive functioning.

Kids dig dirt green paper.-<http://www.naturalearning.org/index.htm>

“When the children put a seed into the ground, and wait until it fructifies, and sees the first appearance of the shapeless plant, and wait for the growth and the transformations into flower and fruit, and see how some plants sprout sooner and some later, and how the deciduous plants have a rapid life, and the fruit-trees a slower growth, they end by acquiring a peaceful equilibrium of conscience, and absorb the first germs of that wisdom which so characterised the tillers of the soil in the time when they still kept their primitive simplicity.”¹⁹





The point of growing food with children is not so much to achieve a perfect crop, but for the children to play an active role in the process from putting the seed in the ground to harvesting the crops. At NMS the children grew, and harvested fruits, vegetables, herbs and flowers.



Chewed leaves are evidence of insects and animals, snails, caterpillars and earthworms attract birds and frogs. This chain of life that begins to establish itself in a living garden give a child first hand experience of the cycle of life and death. Fungi growing on a rotting log is a motive for a discussion of the different forms of life and the role of plants as food, not only for humans and other animals but almost all life on land.



Our children gardened, sometimes an hour a day. The materials were always there: wheelbarrows, rakes, hoes, shovels, spades, watering cans, and baskets. Children chose the activity. And of course, all knowledge takes off from gardening. You must choose a place for your garden. It must be flat, or the rain will roll away the seeds. Let's measure for a space that can be well taken care of as opposed to a garden too big for total attention. Find a place in the sun. Plants need sunlight to make food. What to plant? Foods for salad, foods for soup, and foods to eat right off the plant-all these make for a garden of variety.



The work that the children enjoy most is the harvesting, and because our school went nearly year round, the children could reap what they sowed.²⁰

²⁰ Waltuch, M. The Casa of Sèvres, France. The NAMTA Journal, 21 (3) 1996. pp. 43-54

The same path must be traversed by the child who is destined to become a civilised man. The action of educative nature so understood is very practically accessible. Because, even if the vast stretch of ground and the large courtyard necessary for physical education are lacking, it will always be possible to find a few square yards of land that may be cultivated, or a little place where pigeons can make their nest, things sufficient for spiritual education. Even a pot of flowers at the window can, if necessary, fulfil the purpose.”²¹



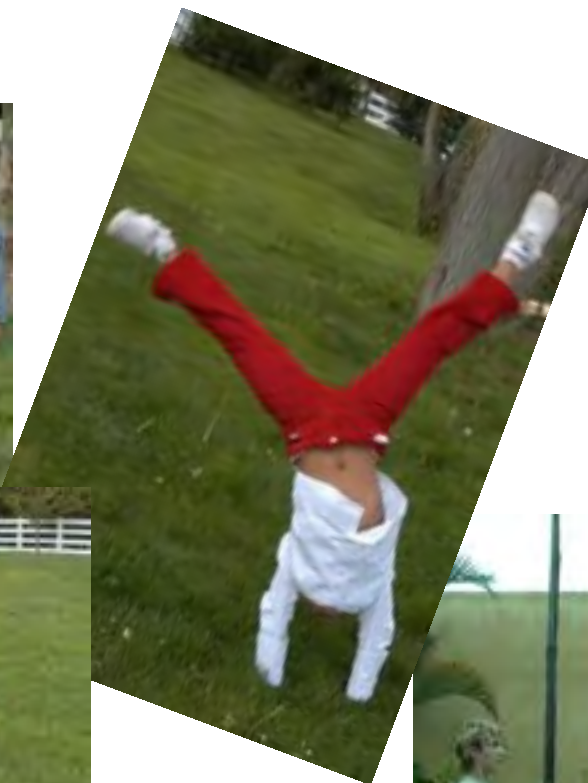
²¹ (Montessori, 1964 p.161)

Physical Activity : Formal and informal sports and games.



Given a ball and a net, a little space and the freedom and time necessary, children have, for time immemorial, arranged their own games. The notion of children needing to have organized sports and games is a relatively new one. Spontaneous games, particularly where mixed ages are involved, provides children with opportunities to practice negotiation and conflict resolution skills in a meaningful context, as well as the obvious physical challenges.





“There is no description, no image in any book that is capable of replacing the sight of real trees, and all 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.”²²

²² Montessori M. ***From Childhood to Adolescence*** (New York, Schocken Books 1973) p. 35

PORTFOLIO



OF ELEMENTS

Transition areas and outdoor classrooms



Left top and bottom: 3 - 6 covered verandahs, New Gate School, Sarasota, FL. (2007)

Below: Adolescent area, Knysna Montessori School, South Africa. (2008).



A garden which contains shelters is ideal, because the children can play or sleep under them, and can also bring their tables out to work or dine. In this way they may live almost entirely in the open air, and are protected at the same time from rain and sun.²³

Attracting life to a children's garden



- Choose plants which attract butterflies, bees and other insects.
- Allow grass to grow long in some areas of the garden.
- Create "tadpole ponds" and allow places for water to gather - allow for some areas to become muddy.
- Choose plants which produce seeds for birds.
- Collect mulch and make compost heaps.
- Use logs liberally to mark beds and pathways. Logs decompose slowly hosting bracket fungi and a wide variety of bugs.
- Create a wild area in an area which does not have a lot of traffic, allow it to grow wild, to attract birds and other creatures.



Do not use poisons of any sort in the children's garden.

Ever!

Play Structures



Traditional plastic and metal play equipment does not really provide the type of holistic learning experience described in this album. Natural elements provide opportunities for both play and work. If it is felt that it is essential to have some play structures, try to find ones that blend into the natural environment, and that are aesthetically pleasing, such as those on the following page.





The most successful additions to an outdoor area are not necessarily expensive. Old tires and rope can accomplish multiple purposes, as can a selection of logs and tree trunks of various sizes.

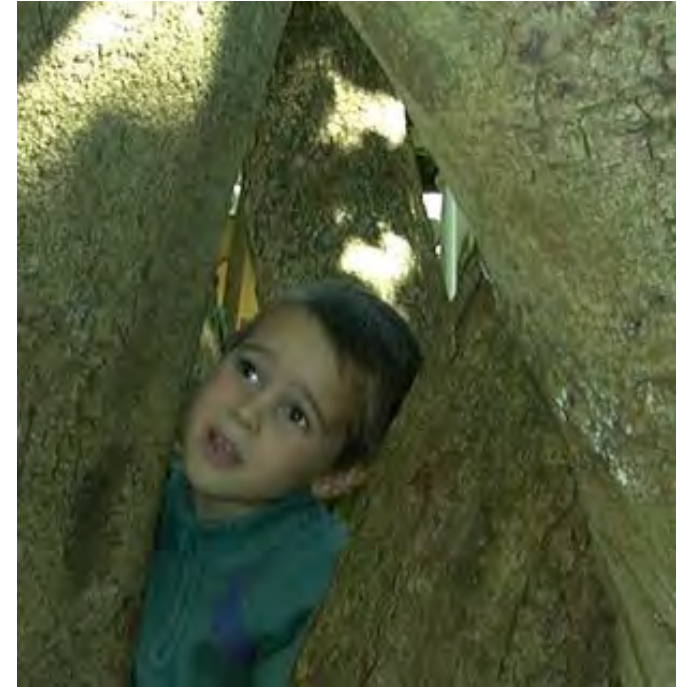
Consider which provides more opportunity for physical activity, co-operation and use of imagination, this simple log and tyres or the commercially manufactured playground car.



Trees and tree stumps provide more interesting and safer climbing options than commercial play structures. The complexity and textural variation promote concentration and provide changing challenges that are in sharp contrast to the regular spacing and uniform nature of commercial climbing apparatus.

For a wide range of articles, ideas and research see <http://naturalplaygrounds.com/economy.php>.

One of the best sources for inspiration is the Playscapes blog: <http://playgrounddesigns.blogspot.com/>. Don't even go there if you don't have a lot of time to explore. While most of the projects featured are large public playgrounds you can find a myriad of ideas that can be applied in school playgrounds on a tight budget. Look at pathways, borders and so on as well as ideas for play structures. http://www.earthplay.net/store_book_nat_playscapes.html is another wonderful resource.





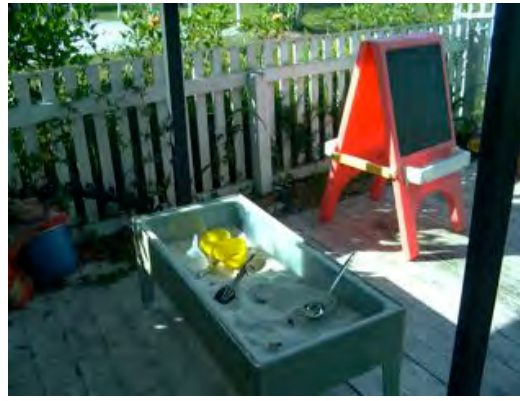
Design for Play:
A guide to creating successful



Aileen Shackell, Nicola Butler, Phil Doyle and David Ball
www.playengland.org.uk/resources/design-for-play.pdf

www.forestry.gov.uk/pdf/...design...play...pdf/.../fce-design-guidance-for-play-spaces.pdf -
you will need to use the site search engine.

Sand pits



Wheeled Toys

© Montessori Foundation/Sharon Caldwell (2009)

Wheeled toys are often regarded as a staple for early childhood settings, although many Montessori Schools manage quite well without them. With a little foresight, these toys can be used as an extension of the Practical Life curriculum.

Pathways and parking are essential. Ramps and tunnels are a welcome extra.



Surfaces



Using a variety of stone and gravel surfaces creates interest and textural complexity in this outdoor space in hot, dry Dakar (left and top).

Sand, grass and bark chips are more aesthetically appealing as safe playground surfaces than rubber.



Pathways

© Montessori Foundation/Sharon Caldwell (2009)



Bridges & tunnels

© Montessori Foundation/Sharon Caldwell (2009)



Food Gardens



The Center for Ecoliteracy's "Rethinking School lunch project" is an indispensable resource. While you would need to adapt most of the activities for a Montessori environment, this book provides ample guidance regarding content and directions you may want to follow. A companion volume *Getting Started: A guide for creating school gardens as outdoor classrooms* contains practical guidance for setting up a sustainable school vegetable garden. The most recent publication from the Center for Ecoliteracy, Michael Stone's *Smart by Nature* is a must-have if you are wanting to create an environment which supports a curriculum of ecoliteracy and sustainable life habits in your school. There is a lot of downloadable material on the Center's website: www.ecoliteracy.org



ISSUES TO BE EXPLORED:

- How to accommodate children with differing needs, abilities and challenges.
- Sensorial issues - creating a garden with smell, texture, colour and sound.
- Labyrinths.
- Taking the whole curriculum outside.
- Linking indoor and outdoors.
- Safety vs acceptable risks.
- Resources - identification of plants and animals.
- Choosing tools.
- Practical life lessons.
- Work or play.
- The importance of play.
- Is this part of the work-cycle or something separate.
- Involving children in the design process - see for e.g. <http://www.learnscapes.org/>
- Water in the environment - see for e.g. <http://www.flowformsamerica.com/projects.htm#Home%20Farm%20Bio-remediation%20&%20Constructed%20Wetland> [consider from aesthetic/spritual to recycling aspects.]

BIBLIOGRAPHY

Cosco, N., and Moore, R., "Greening Montessori School Grounds by Design," *The Namta Journal*, 32 no. 1 (Winter 2007).

Louv, R., *Last Child in the Woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin books. 2006.

Kuo, F. E. & Taylor, A.F "A Potential Natural Treatment for Attention-Deficit/Hyperactivity Disorder: Evidence From a National Study" <http://lhl.illinois.edu/adhd.htm> (Accessed 15 October 2009).

Montessori, M. *The Montessori Method*,

Montessori M., *The Discovery of the Child*. Oxford: Clio, 1988.

Montessori M. **From Childhood to Adolescence** Waltuch, M. "The Casa of Sèvres, France." *The NAMTA Journal*, 21 no. 3. (1996). pp. 43-54.

Zitnick, R. "The Importance of Time Spent Outdoors"