





SENSORIAL

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INTRODUCTION TO SENSORIAL

Development of Sensorial Education:

- *from birth, child is sensorial explorer*
- *0-3 the child is unconsciously absorbing from environment*
- *3-6 are formative years for developing senses*
- *3-6 child begins to organize knowledge and has a natural instinct to refine movement and senses*
- *practical life has prepared the child with movement*
- *sensorial addresses two kinds of education--biological (supports natural development) and social (helps child adapt to environment)*

PRACTICAL LIFE

**The foundation of learning
in a Montessori
environment--prepares the
child for sensorial work.**

*internalize order

*develop fine and
gross motor

skills--coordination

*concentration

*gain independence

. . . WE DO NOT GIVE THIS EXERCISE [RED RODS], WHICH MUST BE CARRIED OUT WITH GREAT PRECISION, BEFORE THEY HAVE BECOME NORMALIZED BY THE EXERCISES OF PRACTICAL LIFE. NORMALIZATION MUST COME FIRST; THE EXERCISES OF PRACTICAL LIFE BRING THE MIND BACK TO NORMALIZATION.

Significance of Sensorial Education:

- *the child builds him/herself from interactions with environment*
- *senses are point of contact with environment*
- *sensorial education (methodical exposure to stimuli) can assist child's development*
- *refined senses improve the quality of information received*
- *the child's ability to organize information (classification, categorization) clarifies and makes sensorial impressions useful*
- *practice and experimentation with Sensorial materials leads to perceptual discrimination, cognitive development, and abstraction--also preparation for other learning (aesthetic, moral, scientific, mathematical)*

"The senses, being explorers of
our world, open the way to
knowledge."

- *Maria Montessori*



MontessoriMischief.com

*The Absorbent Mind, p. 183

THE SENSORIAL MATERIALS

“And if we look at the sensorial apparatus which is able to evoke such deep concentration (remarkable in very small children between the ages of three and four, there is no doubt that this apparatus may be regarded not only as a help to exploring the environment, but also to the development of the mathematical mind.”

****The Absorbent Mind, p.186***

THE MATHEMATICAL MIND

“Man’s mind is mathematical by nature . . . knowledge and progress come from accurate observation.”

Pascal

**The Absorbent Mind, p. 185*

“. . . the mind which is built up with exactitude.”

**The Absorbent Mind, p. 185*

*need for order

*the child’s inner drive to organize, clarify, classify--an internal filing system

*children can organize data into a more usable information

*skills of observation and abstraction--rediscovering the world in a conscious way

*the mathematical mind remains with child after absorbent mind fades

18TH CENTURY FRENCH PHYSICIANS

Jean Itard:

~worked with “wild boy of Aveyron”

~identified sensitive periods

~used observation and experimentation

Edouard Seguin:

~worked with Itard and continued his research

~developed more organized and specific methods of teaching

~worked with the blind

~broke skills down into individual steps

~developed hands-on activities and materials to develop mental processes

~father of special education

We cannot create observers by saying 'observe,' but by giving them the power and the means for this observation and these means are procured through education of the senses.

Maria Montessori

QuoteAddicts

*The Origins of an Educational Innovation, p. 184

THE SENSORIAL MATERIALS

- concrete representatives of abstract concepts
- isolate one aspect (size, weight, shape, smell, etc.)
- mathematical quality (consistent variance, base 10)
- built in control of error for self correction
- involve movement and require control
- limited in number
- include matching and grading exercises
- gives vocabulary after experience
- aesthetically appealing, always complete, orderly
- require concentration, precision, exactness
- develop critical and creative thinking



E.M. Standing referred to the Sensorial Materials as “Keys to the Universe” revealing to the children a new and deeper kind of knowledge about the objects seen in the outside world.

Maria Montessori: Her Life and Work, p. 165

"The senses, being explorers of the world, open the way to knowledge. Our apparatus for educating the senses offers the child a key to guide his explorations of the world..."

~ Dr. Maria Montessori



carrotsareorange.com

****The Absorbent Mind, p. 183***

DIRECT AIMS OF SENSORIAL ACTIVITIES

DEVELOPMENT OF PERCEPTUAL DISCRIMINATION

“Anyone who has beheld not only the qualities of things classified in an orderly way, but also the gradations of each, is able to read everything that their environment and the world of nature contains.”

**The Absorbent Mind, p. 183*

“ . . . the child’s key to guide his explorations of the world, casting a light upon it which makes visible to him things in greater detail . . .”

**The Absorbent Mind, p. 183*

COGNITIVE DEVELOPMENT

“The training and sharpening of the senses has the obvious advantage of enlarging the field of perception and of ordering an ever more solid foundation for intellectual growth.”

**The Discovery of the Child, p. 99*

“The development of the senses actually precedes that of the higher intellectual faculties.”

**The Discovery of the Child, p. 143*

THE AIM IS AN INNER ONE, NAMELY THAT
THE CHILD TRAIN HIMSELF TO OBSERVE; THAT
HE BE LEAD TO MAKE COMPARISONS
BETWEEN OBJECTS, TO FORM JUDGMENTS,
TO REASON AND TO DECIDE; AND IT IS IN
THE INDEFINITE REPETITION OF THIS
EXERCISE OF ATTENTION AND OF
INTELLIGENCE THAT A REAL DEVELOPMENT
ENSUES.

INDIRECT AIMS OF SENSORIAL ACTIVITIES

Each activity has indirect aims--generally the preparation for other areas of learning.

INDEPENDENCE

COORDINATION

CONCENTRATION

ORDER

MATH

SCIENCE

LANGUAGE--READING

AND WRITING

THE ARTS



SENSORIAL AND MATH

“There is nothing in the intellect that was not first in the senses.”

Aristotle

“Therefore, we think of our sensorial materials as a system of materialized abstractions of basic mathematics.”

**The Absorbent Mind, p. 186*

PREPARATION FOR MATH AND LANGUAGE

RED RODS

length in base 10 mathematical increments, patterns, exactness/precision, visual perception, sequencing

GEOMETRIC CABINET

geometry, handwriting (form, fine motor), visual perception, exactness/precision

TRIANGLE BOX

geometry, visual perception, exactness/precision, spatial relations

SOUND CYLINDERS

auditory perception for phonics (building and reading words)

CONTROL OF ERROR

BUILT IN

**MATERIALS WITH SELF CORRECTING
MECHANICS ALLOW THE CHILD TO USE HIS/HER
OWN ABILITIES TO PERCEIVE HARMONY**

CONTROL OF ERROR

“The desire of the child to attain an end which he knows, leads him to correct himself. It is not a teacher who makes him notice his mistake and shows him how to correct it, but it is a complex work of the child’s own intelligence which leads to such a result.”

**Dr. Montessori’s Own Handbook, Page 22*

. . . MISTAKES WHICH THE CHILD MAKES . . . ARE CAUSED BY HIS OWN LACK OF EDUCATION, AND IT IS THE REPETITION OF THE EXERCISE WHICH, BY REFINING HIS POWERS OF OBSERVATIONS, WILL LEAD HIM SOONER OR LATER TO CORRECT HIMSELF. . . AS THE AIM OF THE EXERCISE IS NOT THAT THE RODS BE ARRANGED IN THE RIGHT ORDER OF GRADATION, BUT THAT THE CHILD SHOULD PRACTICE BY HIMSELF, THERE IS NO NEED TO INTERVENE.

**DR. MONTESSORI'S OWN HANDBOOK, PAGE 25*

TWO LEVELS OF WORK IN A MONTESSORI ENVIRONMENT

LEVEL I:

hands-on experience with the apparatus

- *isolate object
- *work exactly
- *create interest
- *prevent misuse
- *respect useful activity
- *facilitate proper follow through

LEVEL II:

introduction of language

- *brief
- *truthful
- *objective
- *rekindle interest in material

THREE-PERIOD LESSON

THREE PERIOD LESSON (*SEGUIN*)

Prior to a three period lesson, the child should have experienced sensorially the concept to be verbalized.

First Period (**identification**)

- *choose 2-3 objects and isolate each for initial vocabulary presentation
- *name, using limited language, "This is _____."
- *encourage child to repeat vocabulary and handle object

Second Period (**recognition**)

- *lay out all objects used
- *play games like, "Give me the _____", "Put the _____ on the table", etc.
- *encourage repetition of vocabulary
- *this period should last a long time and be **fun**
- *if child is confused, return to first period

Third Period (**recall**)

- *isolate object and ask, "What is this?"
- *if child is confused, return to second period

FLOW CHART

VISUAL

dimension/color/form

TACTILE

AUDITORY

OLFACTORY

GUSTATORY

SENSITIVE PERIODS

ORDER: visual harmony, mathematical variances (base ten), systematic, logical, sequential

MOVEMENT: multiple trips to shelf, manipulating materials, differing sizes, control/grace of movement

LANGUAGE: vocabulary after experience, accurate terms used, comparatives/superlatives, sound discrimination, three period lesson for vocabulary, motor skills for writing (tripod grip), form discrimination for letter recognition, left to right orientation

perfection
orientation activity
communication
manipulation
exploration work order
abstraction
repetition
exactness

WordItOut

HUMAN TENDENCIES

PREPARATION OF THE TEACHER



“It is true that the child develops in his environment through activity itself, but he needs material means, guidance, and an indispensable understanding. It is the adult who provides these necessities. If (the adult) does less than necessary, the child cannot act meaningfully, and if he does more than necessary, he imposes himself upon the child, extinguishing (the child’s) creative impulses.”

**The Child in the Family, p. 154*

THE ROLE OF THE ADULT IN SENSORIAL EDUCATION

ENCOURAGE INTERACTION WITH ENVIRONMENT/NATURE - a variety of experiences

PREPARE AND MAINTAIN A CLEAN AND ORDERLY ENVIRONMENT - external order promotes internal, daily routine as well

PRESENT EXERCISES WITH ECONOMY OF MOVEMENT AND LANGUAGE - contribute to the isolation of quality, mechanical control of error first

GIVE LANGUAGE AFTER EXPERIENCE - concrete before abstract

INTERVENE ONLY IF NECESSARY - prevent misuse, redirect

LEAVE CHILD AFTER PRESENTATION - allow natural discovery and experimentation

ALLOW TIME - best circumstances for exploration

ALLOW VARIATIONS THAT HONOR PURPOSE OF MATERIAL - eyes closed and blindfolds, do not allow fantasy play

PREVENT INTERRUPTIONS AND DISTRACTIONS - classroom management

PROVIDE MEMORY GAMES - reinforce language and extend interest, generalize concepts to environment, and exercise memory

IMPORTANT:

*LIMITED ADULT
INTERVENTION*

*SELF-CORRECTION AND
DISCOVERY*

"THE INSTRUCTIONS OF THE TEACHER
CONSIST THEN MERELY IN A HINT, A
TOUCH--ENOUGH TO GIVE A START TO
THE CHILD. THE REST DEVELOPS OF
ITSELF."

THE FIRST DUTY OF AN EDUCATOR

**is to stir up life, but
leave it free to
develop.**

*Discovery of the Child, p. 111



*INDEPENDENT DISCOVERY, NOT NECESSARILY PRESENTED BY ADULT

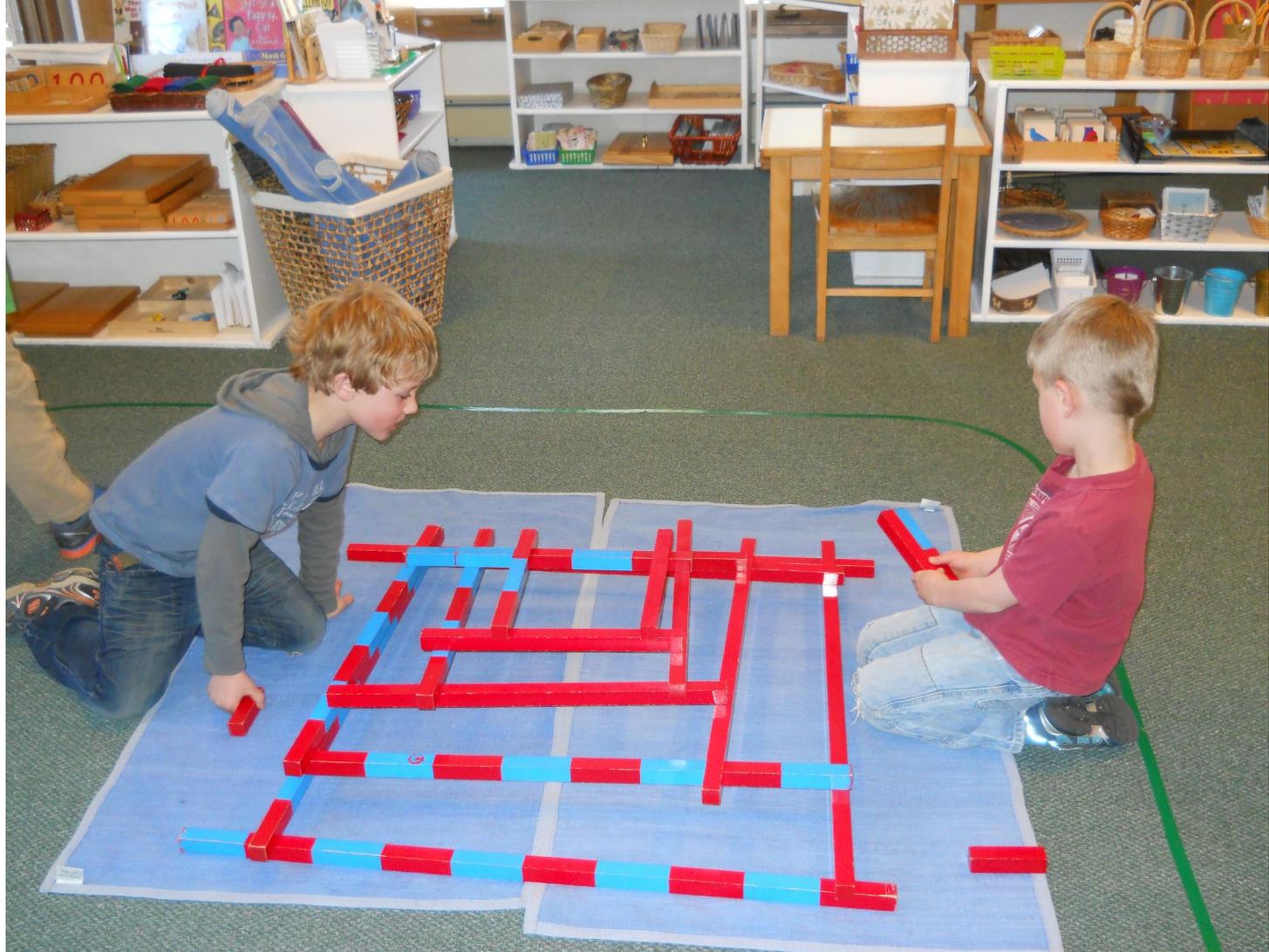
*RELATES TO PURPOSE OF MATERIAL

*MISUSE AND FANTASY SHOULD BE STOPPED -- REDIRECT TO APPROPRIATE ACTIVITY OR DIFFERENT MATERIAL

*CAN REKINDLE INTEREST IN THE MATERIAL

EXTENSIONS









MEMORY ACTIVITIES

FOR SENSORIAL MATERIALS

- *after child has adequate practice and mastery of material
- *presented just before child loses interest in material
- *prolongs use of material to ensure more thorough absorption of concept
- *exercises and strengthens memory
- *works well in small groups
- *can be shown at the same time as language presentation--will strengthen language acquisition
- *helps child transfer concept to environment

MEMORY GAMES

1. RETRIEVE MATCH OR NEXT ITEM IN GRADATION FROM A DIFFERENT LOCATION(S)
 2. FIND AN OBJECT IN THE ENVIRONMENT WITH SAME QUALITY
 3. USE A BLINDFOLD OR HOLD THE OBJECT BEHIND YOUR BACK (STEREOGNOSTIC SENSE)
- WORK IN A SMALL GROUP
 - USE LANGUAGE LIBERALLY AND ENCOURAGE REPETITION OF LANGUAGE







- Montessori's work was greatly influenced by Itard and Seguin, who both worked with "deficient" children.
- Her first work was with "unteachable" children.
- Materials and methods developed by Montessori incorporate strategies used today for "special education."

Montessori Strategies that Accommodate Special Needs

1. Following the child with individualized instruction.
2. Hands-on materials.
3. Tasks broken down into individual steps.
4. Using the senses in learning.
5. Individual strengths and weaknesses revealed, allowing for early detection and intervention.

FOLLOWING EVERY CHILD

ADHD, AUTISM SPECTRUM, SENSORY DISORDERS

Public Schools

15%

Private Montessori
Schools

22%

SOME STEPS TO TAKE . . .

1. Be familiar with developmental milestones.

<https://www.cdc.gov/ncbddd/actearly/milestones/index.html>

2. Observe.

3. Modify environment to match abilities.

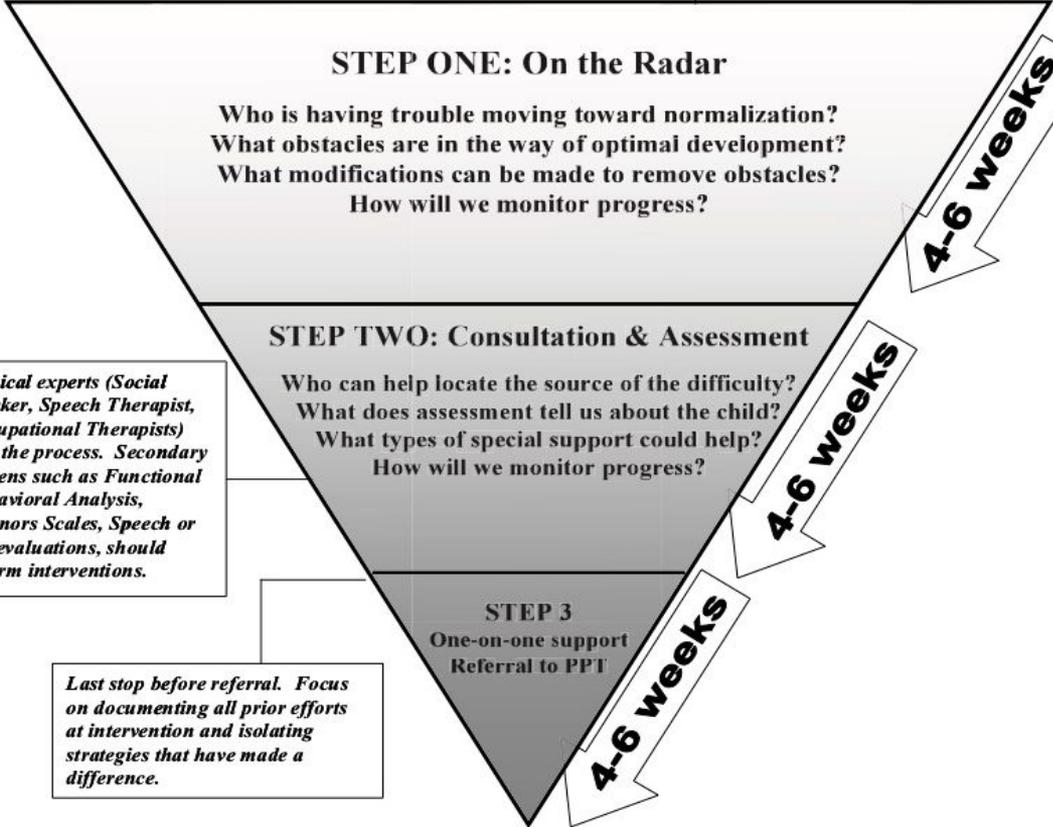
4. Collaborate with peers and specialists.

5. Set realistic goals and evaluate student's progress.

6. Communicate with parents, admin, and specialists.

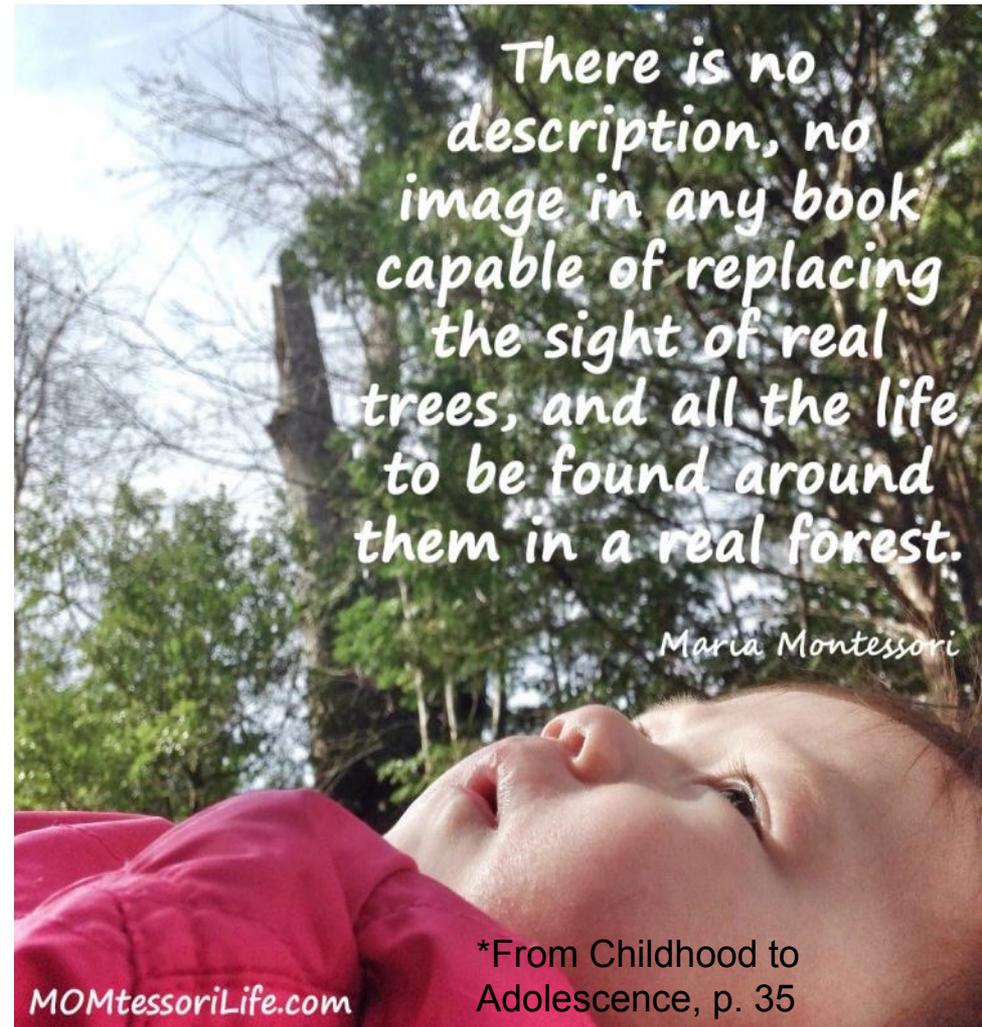
7. Do not diagnose.

Instructional teams suggest classroom-based modifications; troubleshooting and assessment occurs within the context of the team. Universal screens may be employed to inform classroom preparation and to collect baseline data.



CHILDREN IN NATURE

Montessori's work revealed the perfect learning environment--nature. She observed the healing power of nature on the unsettled child as well as the valuable lessons learned from the natural world.



There is no description, no image in any book capable of replacing the sight of real trees, and all the life to be found around them in a real forest.

Maria Montessori

SENSORIAL EDUCATION AND NATURE

Nature and Sensorial education function together as a child experiences, explores, and discovers the wonders of nature. The senses are enlivened by the sounds, smells, sensations, and sights found in the outdoors.

Ahead of her time once again, Montessori identified an important aspect of child/human development--we need nature!

Contemporary research has validated Montessori's ideas about children and nature, as well as many benefits in adulthood.

“Let the children free; encourage them; let them run outside when it is raining; let them remove their shoes when they find a puddle of water; and, when the grass of the meadows is damp with dew, let them run on it and trample it with their bare feet; let them rest peacefully when a tree invites them to sleep beneath its shade; let them shout and laugh when the sun wakes them in the morning.”

- Maria Montessori

*The Discovery of the Child, p. 68

www.montessorinature.com





When children come into
contact with nature, they
reveal their strength.

Maria Montessori

“ quote fancy

The Secret of Childhood

There must be provision
for the child to have
contact with nature; to
understand and appreciate
the order, the harmony and
the beauty in nature.

Maria Montessori

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The Secret of Childhood

PICTUREQUOTES

**A CHILD, MORE THAN ANYONE
ELSE, IS A SPONTANEOUS
OBSERVER OF NATURE.**

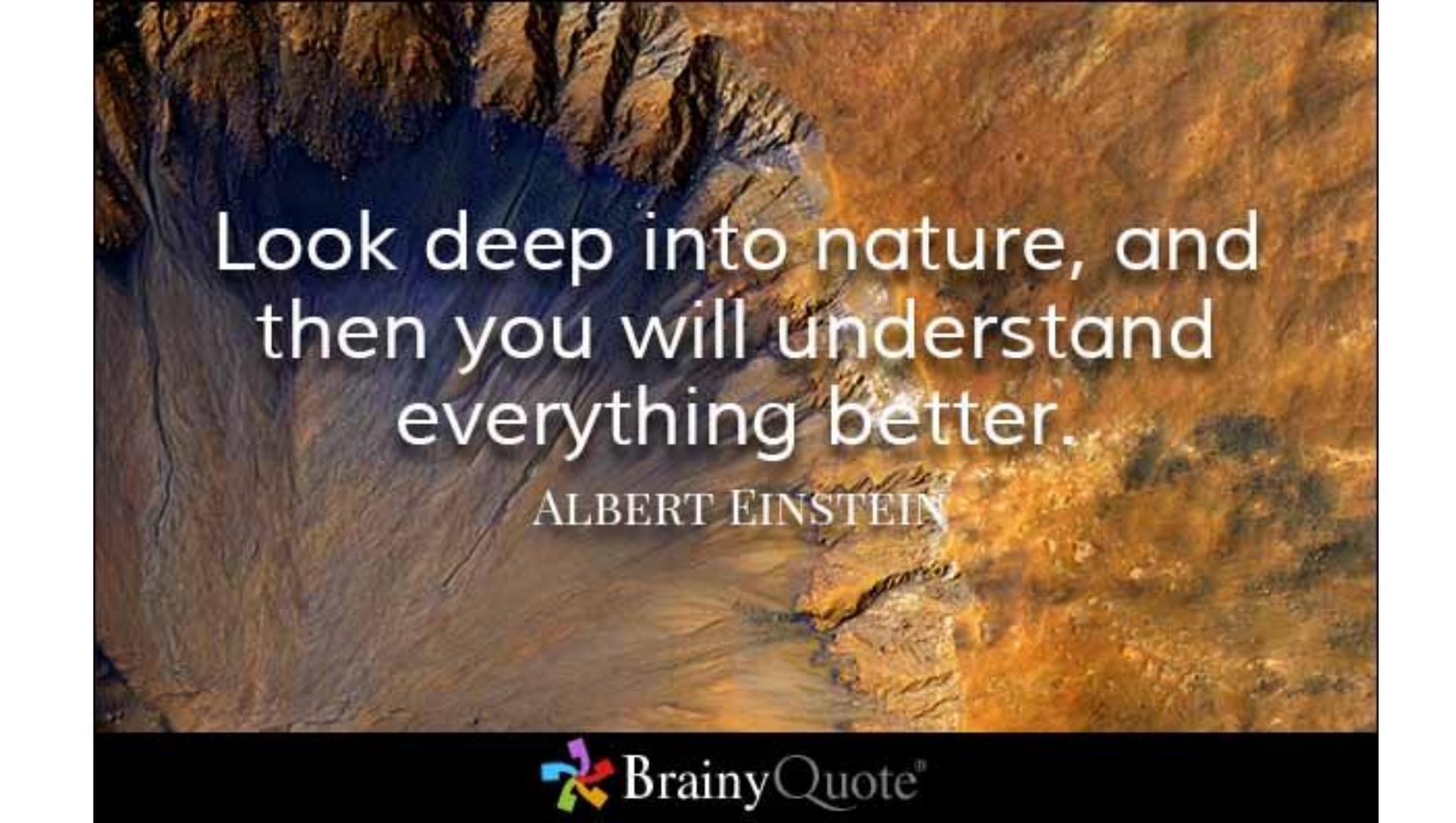
- MARIA MONTESSORI



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.
- *Dr. Maria Montessori*



**The Origins of an Educational Innovation, p. 145*

An aerial photograph of a river delta, showing a network of channels and distributaries. The water is a deep blue, while the surrounding land is a mix of brown and tan, indicating a mix of soil and vegetation. The text is overlaid on the central part of the image.

Look deep into nature, and
then you will understand
everything better.

ALBERT EINSTEIN

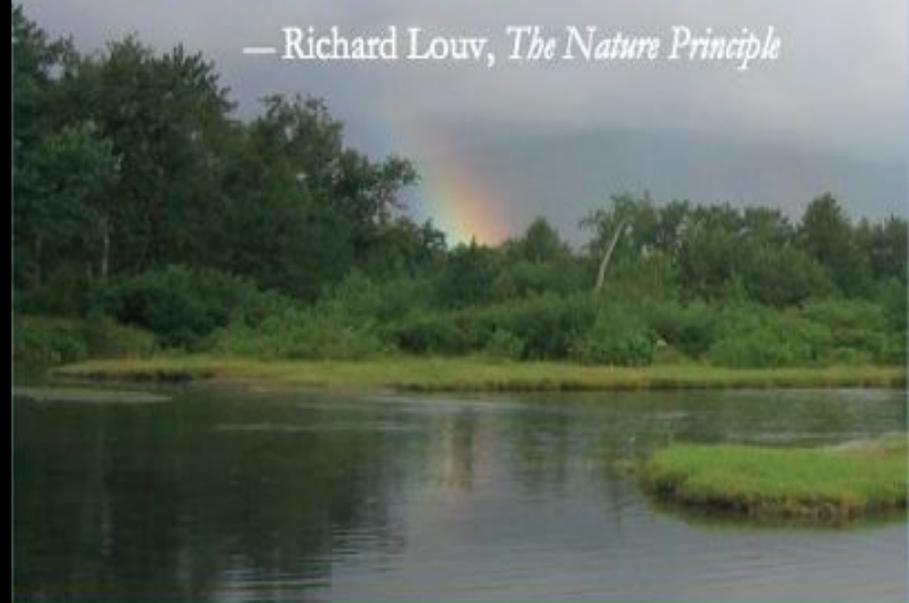


In every walk
with nature one
receives far
more than he
seeks.

~John Muir

“The more high-tech
our lives become,
the more nature we need.”

— Richard Louv, *The Nature Principle*





TRAINING THE SENSES

“The senses are organs for the apprehension of images of the external world necessary for the mind, just as the hand is the organ for grasping material needed by the body. But both hand and senses can be perfected to perform much higher tasks and thus become ever more worthy servants of the spirit that retains them in its service.”

The Discovery of the Child, p.148

