

Keys of the World

Primary Montessori

Samples and TOC

Keys of the World

Primary Montessori

Ages 3-6 years

Samples and TOC

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Keys of the World*

"We are convinced that the child can do a great deal for us, more than we can do for him. We adults are rigid. We remain in one place. But the child is all motion. He moves hither and thither to raise us far above the earth. Once I felt this impression very strongly, more deeply than ever before and I took almost a vow to become a follower of the child as my teacher. Then I saw before me the figure of the child, as those close to me now see and understand him. We do not see him as almost everyone else does, as a helpless little creature lying with folded arms and outstretched body, in his weakness. We see the figure of the child who stands before us with his arms held open, beckoning humanity to follow."

*~Dr. Maria Montessori
Education and Peace*

This samples packet includes the following:

- *Complete TOC from each album*
- *at least 1 complete theory paper or album page from each album*
- *outline of remaining theory papers/topics*
- *selections from and of other album pages*

Wonder how much was removed to provide this sample? See the TOC for the page numbers.

Theory and Background

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Education as an Aid to Life

Education as aid to life is an attitude, not just a technique, system or method. It is a spiritual attitude towards all humankind. We start with the present child to study humanity, our past and our future. All humanity has one thing in common – particular tendencies towards exploration, communication, progress and creation. Education as an aid to life allows us to study the true human nature through careful observation. We educate so that we, and all life, might live life in the way that God intended.

We don't fill children up – rather they reveal themselves to us and we provide the appropriate environment for their true needs. The 'jewel' of true humanity is there within them, planted by God at their conception, if we will only allow for the removal of and the prevention of the build-up of extraneous material. Baptized children especially have had Original Sin washed from their souls. Let's bring them up to live their baptismal command: live as children of the light (Ephesians). Children build themselves in particular stages when provided optimal environments. Children with love and security will develop fine regardless of their educational method, but providing a particularly prepared environment maximizes even these children's potential.

Education's aim is to raise the level of humanity. 'To educate' means "to lead out" – in particular referring to the potential of the child. The child has specific psychic powers of memory, cognition, the absorbent mind, the *horme*, *mneme* and others which he utilizes to build the adult he is becoming. Starting peace education with adults is too late – to build a truly peace-filled society, we must start with the children who are still constructing themselves – as they construct, peace will be built into themselves.

The child's potentiality is not just cognitive, but spiritual, peaceful, emotional and physical – and is also seen in the development of his character.

The secret to education is that we have a lot to learn *from* children. We need to see the child as someone to learn from and with, not just an empty vessel to be filled up with knowledge. When we create the best environment for the child to flourish, he will reveal himself to us as a precious creation gifted to us by God. All adults must help – not just parents and teachers but every adult who comes in contact with children.

*This is our cosmic task – to work towards this social revolution –
to sow seeds broadly throughout the world.*

The History of the Montessori Method

Introduction

Indirect Preparation: Overview of Maria Montessori's life 1870-1907: Education and Early Career

First Casa dei Bambini – 1907

The Montessori Movement: 1907-2007

"It may well be that such a program holds great surprises in store for us."

~Dr. Maria Montessori~

Human Needs and Tendencies

Background and Definition

Dr. Montessori viewed the child as a spiritual being. "We have been mistaken in thinking that the natural education of children should be purely physical; the soul, too, has its nature, *which it was intended to perfect in the spiritual life* - the dominating power of human existence throughout all time. Our methods take into consideration the spontaneous psychic development of the child, and help us in ways that observation and experience have shown us to be wise."¹ The purpose of true education is to help full development of each individual's potential at all levels – to serve as an aid to life itself. "Our goal is not so much the imparting of knowledge as the unveiling and development of spiritual energy."²

Dr. Montessori was not seeking a method of education when she began her work with children; rather she slowly began to see universal human tendencies, more or less strongly at specific age-ranges. She discovered that "there is – so to speak – in every child a painstaking teacher, so skillful that he obtains identical results in all children in all parts of the world."³ This internal teacher utilizes universal needs and tendencies within each and every human being, throughout each person's life, but seen most strongly at particular sensitive periods, or windows of opportunity.

Human needs are those things required for survival in order to live as a human being and not as an animal. Human tendencies are activated by our needs in order to fulfill these human needs. These tendencies are traits which only human beings possess in order to achieve our higher calling as stewards of the earth and heirs of the kingdom of God.

While animals are guided solely by their instincts, humans have a highly motivated innate power to adapt to their environment and cause their environment to adapt to themselves. The human has a much more complex nervous system, a larger brain, the ability to stand upright thereby freeing the hands, as well as the opposing thumb. The entire first plane of development, from conception to age six, is spent adapting oneself to one's own society and culture, through the development of consciousness, reason, will power, imagination, and conscience.

These human needs, which are essential to life itself, and tendencies, which are ordered to the fulfillment of needs, act as creative possibilities – as urges or actual inclinations to move or to act to satisfy basic human needs, both physical and spiritual. From conception to age six, the

¹ Maria Montessori. *The Montessori Method*. 1964: Schocken. 374. emphasis mine

² Ibid., *The Child in the Family*. 1970. 136.

³ Ibid., *The Absorbent Mind*. 1995. 6.

child's mission is to construct himself into such a being that he belongs within his social group, making the environment around him part of himself.

Human Needs

Humans have two types of needs, **physical and spiritual**. Without one or the other, the person will have less life within him, sometimes to the point of death. Physical needs include **sufficient food, appropriate clothing, shelter, defense, and transportation**. Spiritual needs include **love, arts/music, vanitas** (to improve and embellish one's environment), **and religion**: "To deny, *a priori*, the religious sentiment in man, and to deprive humanity of the education of this sentiment, is to commit a pedagogical error similar to that of denying, *a priori*, to the child, the love of learning for learning's sake. This ignorant assumption led us to dominate the scholar, to subject him to a species of slavery, in order to render him apparently disciplined."⁴ Each physical or spiritual need has a basic component or aspect for each individual as well as a social aspect, acting upon the environment, including people, as well as bringing the environment within each person. Children without love of some degree will die, even if they have every one of their other needs fulfilled.

All humans have some typical characteristics in the human tendencies. While individual outcomes can vary greatly, human tendencies are ordered to the goal of fulfilling human needs.

Characteristics of Tendencies

Tendencies can be and are latent at varying periods of life, particularly from conception to shortly after birth. They can strengthen slowly or quickly for varying lengths of times, but are hereditary and in their essence unchanging. Human tendencies have functioned from the creation of man and still operate today. Tendencies develop from the human's need to survive and adapt to his environment. They operate in mature individuals but are clearly present and recognized in the child, particularly during the period up to age six. Tendencies are a driving force behind work towards betterment of the individual person, his family and society and humankind as a whole. Every tendency supports the others as they are all inter-related.

Tendencies

Universal human tendencies as noted throughout time and in the *casa dei bambini* are as follows: exploration, orientation, order, communication, to know/to reason, abstraction, imagination, the mathematical mind, work, repetition, exactness, activity, manipulation and self-perfection.

⁴ Maria Montessori. *The Montessori Method*. 1964: Schocken. 371.

When man was first created, **exploration** was necessary to locate food, shelter, and fulfillments of the other basic human needs. Through early trial and error, good foods to eat, basic shelter and clothing needs were discovered. Through time, man has explored further, finding new foods, modes of shelter and clothing, ways of life, spiritual and religious understandings, discovered the varied greatness of our planet and even beyond. In the children's house (casa dei bambini), our mission is to offer freedom for the child to move at will, providing opportunities for exploration within orderly and beautiful environments.

While exploring the world around him, man had to or desired to return to specific locations, for family, specific foods, shelter, later crops and/or large group protection. **Orientation** originally used the stars, rivers and mountains as indicators of current location, desired location and preferred routes between each one, much as we use landmarks of various types today. Later, maps were developed as well. Orientation for the child is also fulfilled in a particular structure to the day as well as knowing that everything is in its place from one day to the next, which helps the child to hold the environment in his mind. The child orients himself to the environment through order of the schedule and of the physical characteristics; an environment which should be stimulating, but not overly so.

Order is the basis of the entire universe; without it there would be only chaos and no possible way of anticipating or instigating appropriate changes and improvements. Seasons follow in a cyclical pattern, the days and years proceed in orderly fashion, vegetation grows, produces food and seed, dies and provides nourishment for other growth, the cycle of human life, etc. The child has sensitive periods for order in the environment and in his life, which help him to adapt to his environment; most particularly during these sensitive periods, physical order frees the mind to create and a lesser, clutter-free environment is best. A child of two is at the most sensitive period for order: "It is at this time that the need becomes a principle of activity and provides one of the most interesting phenomena to be observed in our schools. When an object is out of place it is a child who perceives it and sets about putting it where it belongs. A child of this age notices a lack of order in the least details which escape the notice of adults and even of older children."⁵ This external order assists the child in establishing a mental order which builds up intelligence.

Humans are social beings, thus **communication** is necessary to share discoveries, express ideas, needs, thoughts, instructions, etc. Language was invented by humans; no animals have language to the level of humans. The child has physical independence when he can walk, but mental independence when he can speak clearly.

⁵ Maria Montessori. *The Secret of Childhood*. 1966: Fides. 52.

Humans have a strong tendency towards **knowledge** of various sorts and the ability to **reason** through the various pieces of knowledge they obtain, defining, classifying, making predictions and plans. Through familiarity with the environment, gained through experience within that environment, humans develop, even in childhood, the ability to apprehend truth. Once this knowledge base has been established, the young child, indeed all humans, use reasoning skills to judge each new and old piece of knowledge.

Abstraction is the ability to see qualities and ideas, to eventually be able to understand a concept through spoken, written, or drawn communication, rather than through concrete materials. All of the sensorial materials in the casa dei bambini are materialized abstractions, meaning that they are identical in every way except for the one concept which is to be learned, for example size or color.

Imagination allows man to create. With knowledge, reasoning and the ability towards abstraction, one's imagination is set free to create solutions to current problems, demonstrate new techniques, or simply to entertain. The Montessori Method does not utilize fairy tales until the elementary age; the younger child is equipped to fully utilize his imagination through various tools providing him with reality, art skills, and developing focus on careful observations with the materials.

Humans have **mathematical minds**. All of our inventions depend on our ability to think mathematically. Humans measure time, volume, weight, etc.; count; express the concept of 'how many' in specific amounts or in comparisons of more or less. Order, exactness and abstraction all contribute to the mathematical mind, through exercises of pouring water, cutting flowers the proper length for a particular vase, seeing sizes of various cylinder blocks, cubes, prisms, rods and bead sets.

The tendency towards **work** is the expression of spirituality. Work that is purposeful is towards an end of some sort, whether it be the formation and perfection of the self, to make a specific product, earn a certain amount of money or otherwise. Work makes ideas reality, but even at the end of a great work, everyone, including the child, needs a period of rest, physically or mentally, by sleeping or returning to a simpler work. The young child seeks work that is geared towards forming the man he will become – he is much less concerned with the end exterior result of his work, than with the self-perfection he is developing within himself.

Repetition is necessary towards self-perfection, allowing for strengthening of a learned or in-progress skill. Self-esteem comes from a child feeling competent, and only through repetition can the child be allowed the opportunity to perfect any particular skill, therefore interruption is neither necessary nor desired; the child will cease his work when he has completed the task he set out to do. The child normalizes himself through repeated work which

leads to perfection – a process-oriented perfection defined differently from the product-oriented adult's definition.

Through repetition, the tendency towards **exactness** is fulfilled. Later in life, exactness will be crucial: giving medicine, baking, doing gymnastics, driving a car, and more. With a built-in control of error, a young child can work with a material over and over, thereby developing a deeper sense of exactness.

Whole body activity is necessary to go out and explore. Humans express themselves through **movement**: body language, dance, ways of walking and carrying themselves. In order to explore, one must take one's entire body and do so. Long walks, material on a shelf on the other side of the room, climbing a mountain... the young child requires movement to learn about his environment – as much as is possible, he must actually go to the source of the knowledge.

Only humans have the ability to truly **manipulate** the environment, with both the physical capacity in the opposing thumb, but also in the mental and emotional capacity. Through the hand, the child can order and classify the world. Work with the hands develops strong connections to and within the brain, stimulating brain activity and increasing learning. The child develops muscular memories from performing a task several times, thereby strengthening the connection to the brain and connection to other learning experiences.

The tendency towards **self-perfection** seems more obvious in the religious sense of obtaining as close to ultimate perfection as possible, yet is more than just religious. This tendency does most clearly express the spiritual life. Self-perfection is not simply about mastery of self, but mastery of the elements of the world and of life, including the inner life, and great joy is experienced as adults and children attain some level of mastery, of self-perfection. This tendency gives meaning to the mysteries of life, allowing each person to explore them, work within them, and experience joy of discovery in the various mysteries. Expression of this tendency begins with self-control and self-discipline and leads into expressions through art, music, poetry and other creative forms of expression. One's role in society is benefited more and more as self-perfection is attained.

Role of the Adult and the Environment

- The child depends on the adult to provide the environment and the opportunity to use these tendencies to their fullest in order to fulfill their needs. The adult should provide for each tendency as listed above, with the understanding that while each one is important throughout life, there are sensitive periods for each one in which needs and other tendencies are most fully strengthened and matured.

- The physical environment should be simple, beautiful and orderly, with plenty of room to move around, as well as an arrangement which requires both gross and fine motor movement; minimal changes only as needed and with the participation of all affected persons.
- A regular routine should be established with the children, again with the children participating in any necessary changes, i.e. with forewarning or other preparation. The child thrives on hearing real language, enunciated clearly, not baby talk or watered down sentences; he needs guidance and advice for specific social situations as they present themselves.
- The child needs to see excellent role models, who perhaps make mistakes but are quick to recognize them, ask forgiveness and improve themselves.
- The child needs opportunities for rest and reflection after moment of intense work, therefore simpler activities should always be present in the environment to which the child can return at any time.
- The adult should allow the child to participate in the world around him, opening and closing doors and drawers, helping to prepare or clean up for various family and social activities.
- The adult should move at the child's pace; there should be substantial enough time to allow for plenty of repetition without unnecessary interruption; materials and activities which require exactness, including glass and other fragile items which require exactness of movement; materials at the child's level to promote usage.
- Mistakes should be expected and almost encouraged, with materials, activities and words set up in a manner which allows for auto-correction.

Human behavior is not only instinctual but humans have potentialities which are only activated by truly living, by interacting with the environment, the people and things, around him. Adults can support this activation or be obstacles to its development. Education itself can be transformed only when it utilizes the natural order of the human tendencies, recognizing and respecting them. The Montessori Method is based on tendencies which have always existed; there is nothing new in these tendencies, though the listing and emphasis of them is innovative in the realm of education and of living life. These tendencies come from the spiritual part of the human life. "The small child is spiritual. He is the perpetrator of all that is spiritual. He is the link in the long chain of history that ensures human evolution (towards perfection)."⁶

⁶ Mario Montessori. (the pamphlet). 32.

The Four Planes of Development

General Characteristics

Contrary to popular and past thought, development is not linear, proceeding in ever-increasing difficulty from one step to the next, evenly. Rather, development occurs in planes, specific phases or stages, which require different environments to support full development at each one; successful completion of each plane leads to a deeper fulfillment of the next. Physical characteristics change from one plane to another. These planes were discovered, and can be seen, through direct observation of the child. These planes are therefore anthropologically based, broken into chronological increments of conception to age six known as infancy, age six to twelve known as childhood, twelve to eighteen known as adolescence, and eighteen to twenty-four known as maturity; each one is then subdivided into two three-year periods known as sub-planes, the first three-year period for construction and growth, the second three-year period for crystallization, consolidation and confirmation. Planes one and three parallel each other in growth, planes two and four more subtly parallel each other in their relative calm and serenity.

Characteristics change at the beginning of each six-year plane, with new development occurring during the first three years in each plane with ensuing insecurity – each plane can be almost compared to a re-birth.⁷ Difficulties and imperfect development are the results of an incomplete first plane, which will end even if not fulfilled as a child moves to the next plane regardless of fulfillment of the previous phase. However, if the first three planes are assimilated, the fourth plane is almost automatic.⁸

In the public realm, education has been broken into stages more or less correlating with these planes of development, though seen from a linear view, which disjoins each stage from the next, assuming that growth of intellectual capacity continues in a constant manner.⁹ In *The Formation of Man*, Montessori writes: “Each stage is clearly defined and the methods, which are constantly on the increase nowadays, are always limited to one or another of these well-defined categories” with different methods employed at each stage.¹⁰ No stage depends on any other stage, simply assuming that anything previously missed can be taken in later. Indeed, in the Montessori structure, the environment in each of the four planes varies greatly from one another, with the greatest importance placed on the first plane which is the basis for all

⁷ Maria Montessori. *The Absorbent Mind*. 1995. ch3. p19.

⁸ Camillo Grazzini *The Four Planes of Development and Montessori's phases of development*

⁹ Maria Montessori. *The Absorbent Mind*. 1995. ch3. p20-22.

¹⁰ Maria Montessori. *The Formation of Man*. 1976. 6.

subsequent development. The environment for the child at each plane must be adjusted but the approach is always based on respect for that individual as well as the universal child, respect for his freedom and growth at this moment in this place, and the environment provides him the tools and opportunities to maximize his experiences and potentials necessary to be fulfilled at each plane. While from the outside, the Montessori approach to each plane appears different on the surface, the underlying philosophy, respect, freedom with limits, and opportunities for maximum growth remain.

Each plane's maximum potential depends on the success of the previous planes. Making up for lost time becomes increasingly difficult to the point of impossible as each plane progresses and is passed.

First Plane – Infancy/Early Childhood

Second Plane - Childhood

Third Plane - Adolescence

Fourth Plane – Young Adult (Maturity)

Conclusion

The Absorbent Mind

Physical and Psychic Embryo

Unconscious Powers

Characteristics of the Absorbent Mind

Sub-phases

Process of Adaptation

Examples of Acquisition

Role of the Environment/Adult

Sensitive Periods

Introduction

"As the individual develops, he passes through a succession of well-defined stages or epochs, each of which is characterized by a peculiar sensitivity to certain aspects of his environment; and a corresponding capacity to absorb them into his mental life."¹¹ In her writings, Dr. Montessori refers to these 'stages or epochs' as sensitive periods. They have been recognized by other researchers and educators who have given them different varying names, noting critical, yet brief, periods of intense interest and learning that cannot be replicated at other times. Sensitive periods bring out tremendous activity geared towards a definite preference for specific aspects of the environment.

Definition

There are four clear sensitive periods, though there are quite possibly more. Some could be identified separately but are part of the four clearly defined ones; some could be quite subtle or have not been noticed due to an insufficiency in earlier development that does not allow a sensitive period to clearly show itself. Language, order, refinement of the senses and movement are the four key sensitive periods noted in all children.

(more)

Historical Aspects

Characteristics

Sensitive periods in the first plane

Observable Manifestations – positive and negative

Sensitive periods in the 2nd and 3rd planes (Psychological Characteristics)

Role of the Adult

¹¹ Maria Montessori and others. Ed. E.M.Standing. No year given, but a recent re-publishing of the 2nd edition published in 1965. 56.

The Prepared Environment

Definition

Types of Prepared Environments

Inner environment:

In between or receiving area:

Outer environment:

Children's House: Prepared Environment (Psychological)

Role of the Adult

Results of the Prepared Environment

The results of the prepared environment are many and varied and are not limited to the following:

- functional independence
- acquisition of skills
- community and social cohesion
- care of the environment
- confidence
- competency-based self-esteem
- not the 'I am special, You are special' false outer self-esteem
- respect for other children
- materials
- other living life
- peacefulness
- concentration¹²
- keen sense of developed order –
- carries over into other areas of life
- feeling of security
- sense of belonging –
 - to something outside themselves
- refined, graceful movements
- love for learning
- strong academic foundation
- language, math,
- how the world operates (through sensorial)
- strong connection to reality
- able to follow-through – complete task
- responsible
- keen observers
- appropriate risk takers –
- not afraid to make mistakes
- secure and safe environment
- appreciation for nature
- appreciation of other cultures
- and for other types of differences
- refined senses
- joy
- adaptability to new situations later

¹² ("all learning depends on the ability to attend")

Development of Movement

Movement as an Expression of Life

Development of Movement from Conception to Age Three

Development of the Hand

“Never give to the mind more than you give to the hand.”¹³

Refinement of Movement in the Children’s House

The Hand in Education

Adult Responsibilities/Role of the Environment

¹³ Maria Montessori.

Development of Language

The Nature of Language

History of Language

Development of Language in Children

Stages of Language Development in Children

Birth to three months:

4-6 months:

6-8 months

9-10 months:

10-12 months:

12-14 months:

15-18 months:

18-30 months/around 24 months:

36 months:

Adults' Responsibilities

The Child's Contribution to Language

Language Difficulties in Children¹⁴

¹⁴ Excerpt from Patricia McAleer Hamaguchi. *Childhood Speech, Language and Listening Problems*.

Observation

Nature and Significance of Observation

Discoveries Made Through Observation

Observation of Human Behavior - Limitations

Characteristics

Points to Notice as an Aid to Observation

Additional:

“Interesting and surprising anecdotes should also be recorded carefully.”

Normalization and Deviations

“Normalization is the most important single result of our work.”

~Dr. Maria Montessori~

Definitions for Normality and Deviation

Characteristics of the Normalized Child

“Our children are notably different from those in ordinary schools. They have the calm look of happy individuals and the ease of those who are masters of their own actions.... They give the impression of being remarkable little men and women.”¹⁵

love of order: being in the sensitive period for order, there is a deep need for it, keeping the environment simple with both physical and psychological order.

love of work: this refers to purposeful work that is freely chosen.

deep spontaneous concentration: Concentration works in collaboration with the other characteristics, leading to achievement of the task at hand as well as the inner development of the child’s self.

maximum effort: the normalized child displays a desire for maximum effort, taking a work as far and as long as he can stretch himself, moving to something simpler and much less taxing afterwards before returning to another more intense work time.

sociable: Normalized children tend to be a joy to be around, with properly developing social graces and their own personal contributions to activities and conversations.

cooperative and obedient: this includes the child’s ability to control his own behavior. Obedience is developmental and in three stages, only the last of which is the ability to obey through a free act of the will.

independent: the environment must support this both in the home and the casa.

attached to reality: the child does not live in a fantasy world all or even most of the time, though shows imaginative processes at appropriate times. The child wants to know about reality and have a firm grasp on it before moving into more fantastical work (i.e. Great Stories) that is initiated by the child, usually in the elementary level.

lover of nature: the normalized child sees the natural world as an extension of himself and his connection with all of Creation – in many places on earth, the seasons are ever-changing and everywhere nature provides experiences in which all of the listed characteristics can be utilized, maximized and open doors for further discovery of self.

¹⁵ Maria Montessori. *The Discovery of the Child* Conclusions and Impressions, 320-321.

reflective – loves silence: the normalized child loves the silence activity and will seek to repeat it by himself many times over, through sheer enjoyment and peace.

joyful: the child cannot help but feel joy when his inner soul has been affected and enhanced by the other characteristics of normalization. "A physiologist, making an exact comparison, might affirm that joy is the indication of internal growth, just as increase in weight is the indication of bodily growth."¹⁶

ability to judge/be reasonable: the normalized child has a strong ability here, with plenty of opportunities throughout his time in the casa.

initiative: the normalized child takes initiative, helping others and caring for himself and the environment with little to no external prompting.

loves to work alone: the normalized child works alone to satisfy most of his needs, but also works well in cooperation with other children and will seek social interactions as appropriate.

sublimation of the possessive instinct: children who are normalized have no inner desire for other people's possessions, as their own needs are fulfilled. This does not prevent the tiny things from the casa such as the tiniest pink cube from finding its way home, but refers to coveting and stealing.

delicacy, not destructiveness: the normalized child has great respect for the environment, others and himself. Out of an inner need to maintain order as well as proof of his own development of movement, among others reasons, the child is gentle with materials and straightens them when others leave them out of order.

desire to know, love, and serve: from 3-6yo, this characteristic more specifically refers to other children in the community as well as family members. This desire to know, love and serve reaches its maximum fulfillment in the knowledge, love and service of and to the Good Shepherd.

inner-discipline: "true discipline... results of which are... 'respect for others and consideration for the rights of others.'"¹⁷

spiritual striving towards perfection: the child builds his own character through active involvement in the environment, specifically in having his needs met and being able to fulfill them at his own internal pace.

Causes of Deviations

Types of Deviations

¹⁶ Maria Montessori. *The Advanced Montessori Method - I*. Chapter 3.

¹⁷ Ibid.

Obstacles: Cultural Influences and Other

Process of Normalization

Role of the Adult and the Environment

Various Quotes

“The most urgent task facing educators is to come to know this unknown child and to free it from all entanglements.”

“To assist a child we must provide him with an environment which will enable him to develop freely. A child is passing through a period of self-realization, and it is enough simply to open up the door for him.”

“Since it is in possession of an expanding energy it has no great difficulty in manifesting itself.”

“By his (the teacher’s) passive attitude he removes from the children the obstacle that is created by his own activity and authority. The children can thus become active themselves.”

“What is most characteristic of this system of education is the emphasis that is placed on the environment.”¹⁸

¹⁸ Maria Montessori. *The Secret of Childhood*. Part 1, Chapter 4.

Normalization

What is to be particularly noted in these child conversions is a psychic cure, a return to what is normal. Actually, the normal child is one who is precociously intelligent, who has learned to overcome himself and to live in peace, and who prefers a disciplined task to futile idleness. When we see a child in this light, we would more properly call his "conversion" a "normalization." Man's true nature lies hidden within himself. And this nature, which was given him at conception, must be recognized and allowed to grow.

But this interpretation does not remove the appearance of a child's conversion. Even an adult could perhaps be converted in the same way but the change would be so difficult that it could no longer be recognized as a simple return to the essentials of human nature.

In a child the normal psychic traits can flourish easily. Then all those traits that deviated from the norm disappear, just as with the return of health all the symptoms of disease vanish.

If we would observe the child in this light, we would ever more frequently recognize the spontaneous flowering of normality, even in the midst of a harsh environment. And though these indications of a normal development are rejected because they are not recognized or assisted, they still return to vital principles that thread their way through obstacles in their desire to succeed.

It might even be said that a child's normal energies, like the voice of Christ, teach us a lesson in forgiving, not seven times, "but seventy times seven." From the depths of his nature, the child repeatedly pardons the adult and strives to flourish despite the latter's repressions. He is engaged in a constant struggle against forces that would submerge his normal development.

The Montessori Adult

Preparation of the Adult

*"...Though all ought to possess all virtues, yet all are not equally bound to exercise them;
but each ought to practice, in a more particular manner,
those virtues which are most requisite for the state of life to which he is called."*

Introduction to the Devout Life (Part III, Chapter I)

St. Francis de Sales

Introduction and Definitions

Transformation of the Adult

"A teacher must not imagine that he can prepare himself for his vocation simply by acquiring knowledge and culture. Above all else he must cultivate within himself a proper attitude toward the moral order. Of vital importance in this preparation is the way in which we regard a child. But our subject must not be approached from its external aspect only – as if we were concerned merely with theoretical knowledge about the nature of the child and methods of instructing and correcting him."¹⁹

There are four ways in which the adult becomes prepared to work with the child in the prepared environment: spiritually (including emotions), intellectually, technically, and physically.

Spiritual Preparation:

Spiritual Preparation – Listening:

Spiritual Preparation – Conclusion:

Intellectual Preparation:

Technical Preparation:

Physical Preparation:

Facing Difficulties and Problems in Implementing the Method

The Adult's Discipline

Develop Appropriate Characteristics

¹⁹ *The Child in the Church*. Chapter 4: The Spiritual Training of a Teacher.

Independence

Introduction/Definition

Levels of Independence

Psycho-Physical

Weaning

Movement and Articulate Language

Consciousness

Intellectual

Social, Cultural and Moral

Socio-Vocational and Economic

Spiritual

Independence, Freedom and Responsibility

Emotional Foundations of Independence

Independence in the Home

Adult

Environment

Independence in the Prepared Environment

Definition of the Prepared Environment

Prepared Physical Environment

Prepared Social Environment

Role of the Adult in the Prepared Environment

Factors the Promote Independence

Freedom and Discipline

Definitions of Freedom and Discipline

Types of Discipline

Necessary Conditions to Grant Freedom

constructive work based on knowledge:

The needs of the social community:

Order:

Inner Discipline and its Relationship to Obedience

Freedom and Limitations

Freedom of choice:

Freedom to Repeat:

Freedom of Movement:

Freedom to Communicate:

Location of Work:

Parenting Style

Authoritarianism

Permissiveness:

Montessori Discipline/Role of the Adult

Three Levels of Obedience

(one page paper)

Social Development

What is social life if not the solving of social problems,
behaving properly and pursuing aims acceptable to all?

Education as a Means for Social Change

The child's contribution to society

Social Development from Birth

Home Environment as First Experience of Society

Montessori Environment as Supportive Structure

"There is among children an evident sense of community. This rests on the noblest feelings and creates unity in the group. These examples are enough to teach us that under conditions in which the emotional life reaches a high level, and the children's personalities are normalized, a kind of attraction makes itself felt. Just as the older ones are drawn to the younger, and vice versa, so are the normalized drawn to the newcomers, and these to those already acclimated."

Errors and Their Corrections
A.M. Joosten (1956)

(awesome multi-page document)

Montessori Reading List

There are many great books that could be added to this list. Comprehensive lists are available on the internet on various Montessori websites. The following list is a compilation of the requirements of AMI primary Montessori training centers for their primary Montessori trainees.

By Dr. Maria Montessori:

Advanced Montessori Method, Volume 1

The Secret of Childhood

The Absorbent Mind

The Discovery of the Child (drastically updated; previously titled The Montessori Method)

The Formation of Man

The Child in the Family

Education and Peace

By Mario Montessori Jr.

The Human Tendencies and Human Education (AMI)

The Four Planes of Development (AMI)

By E.M. Standing

Maria Montessori – Her Life and Work

The Montessori Method: A Revolution in Education

The Child in the Church (edited by EM Standing; articles by MM and others)

By Susan Stephenson and Michael Olaf

Essential Montessori and Joyful Child

By Kathleen H. Futrell

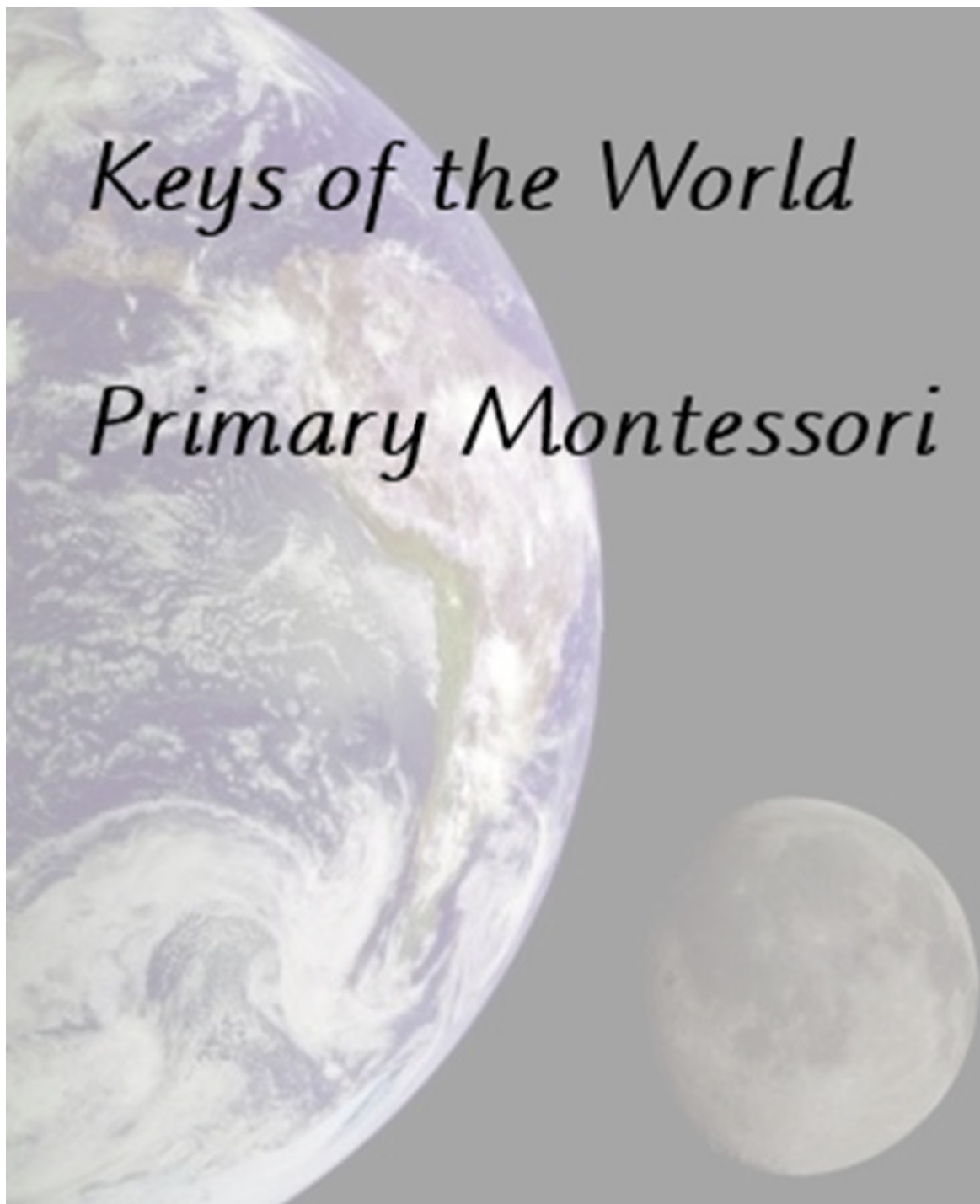
The Normalized Child

By William Crain

Reclaiming Childhood: Letting Children Be Children in Our Achievement-Oriented Society

An Index (Concept Bibliography) to Montessori books

By topic



Keys of the World
Primary Montessori

*Exercises of Practical
Life Album*

Keys of the World

Primary Montessori

Ages 3-6 years

*Exercises of
Practical Life Album*

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Keys of the World*

"We are convinced that the child can do a great deal for us, more than we can do for him. We adults are rigid. We remain in one place. But the child is all motion. He moves hither and thither to raise us far above the earth. Once I felt this impression very strongly, more deeply than ever before and I took almost a vow to become a follower of the child as my teacher. Then I saw before me the figure of the child, as those close to me now see and understand him. We do not see him as almost everyone else does, as a helpless little creature lying with folded arms and outstretched body, in his weakness. We see the figure of the child who stands before us with his arms held open, beckoning humanity to follow."

*~Dr. Maria Montessori
Education and Peace*

Exercises of Practical Life

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Introduction to the Exercises of Practical Life

Definition and Description

Purposes

Areas of Practical Life

Characteristics of the Materials

Responsibilities of the Adult and Guidelines for Giving a Presentation

Long-term results

Preliminary Exercises

How to Pour Grain

Materials

A small tray, three small transparent glasses, transparent glass pitcher, grain. The pitcher is filled with millet or other grain. The amount of grain is slightly more than that needed to fill each of the glasses about $\frac{3}{4}$ full.

Prerequisite

How to carry, hold, put down a pitcher; how to carry a tray

Presentation

1. Invite an individual child.
2. Show where the materials are kept and how to carry. Ask the child to carry the tray to the table.
3. "I'm going to show you how to pour grain. Watch."
4. Place glasses on a diagonal from lower left to upper right, placing the pitcher in the lower right corner.
5. Pick up the pitcher using 4 fingers (see endnote).
6. "Watch where I stop."
7. Center the spout of the pitcher over the far left glass; using small circular movements, slowly pour the grain to fill the glass about $\frac{3}{4}$ full.
8. Pause and lift.
9. Repeat with the remaining two glasses.
10. Place the pitcher in the lower right corner.
11. "I will now show you to how to return the grain to the pitcher."
12. Return the grain to the pitcher, beginning with the first one poured. Carefully pick up each glass, center over the pitcher and pour.
13. Repeat with the remaining two glasses.
14. Replace the items on the tray: pitcher first, then the glasses.
15. Invite the child to repeat.

Points of Interest/

Consciousness

- *watching where to stop
- *circular motions
- *sound of the grain
- *no spills

Direct Aim(s)

Independence, concentration, preparation for activities using pouring

Indirect Aim(s)

Coordination of Movement

Age

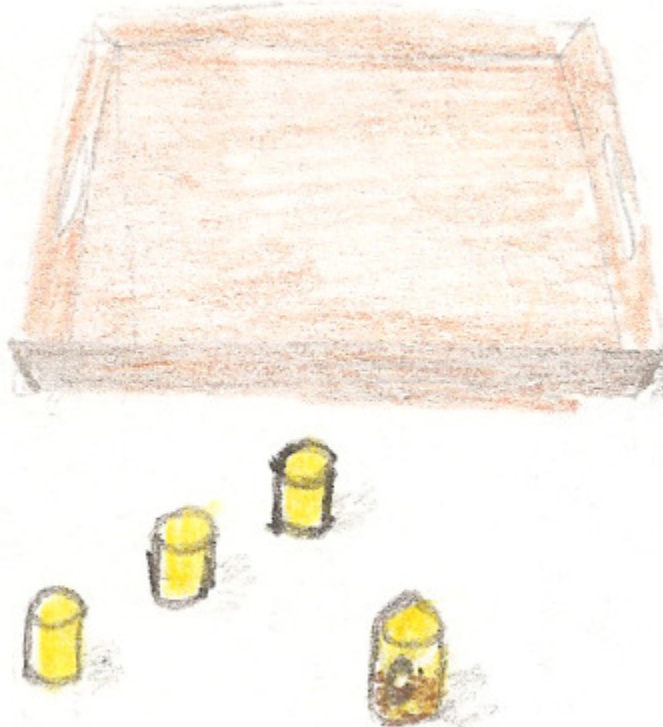
2.5-3

Language

Glass, name of grain

Endnote(s)

Rice does not pour as well; millet and other rounder grains are best; If the pitcher handle is small, use 2 fingers rather than 4; if any grains spill, show how to pick them up with the fingers – if the spill is large, use dustpan and brush/broom.



*Care of
Self*

How to Wash Hands

Materials

Child height table – may be covered with attractive oilcloth or tablecloth; small attractive china basin and matching pitcher; small dish for soap, small dish for jewelry, small tray or dish for nailbrush, pump container for hand lotion, hand towel, drying towel, bucket, apron, mirror if possible; supply of extra towels (a few on shelf under table with more elsewhere)

Prerequisite

Pouring water, cloth folding, using an apron, how to carry a bucket, how to place a pitcher

Presentation

1. Invite an individual child. "May I show you how to wash your hands?"
2. Put on an apron and show how to roll up sleeves.
3. Remove jewelry and place onto the jewelry dish.
4. Remove pitcher from basin and place to the right.
5. "We're going to fill the pitcher with warm water up to here," pointing to about $\frac{3}{4}$ full. Do so. Return the pitcher to the right of the basin.
6. Pour water into the basin to about half full.
7. Dampen left hand – palm up first, then palm down.
8. Take soap in right hand and lather onto left hand. Return soap to its dish.
9. Dampen the right hand.
10. Rub fronts of the both hands, then the backs of each one.
11. Rub each individual finger, beginning with the left hand, using back and forth motions.
12. Rinse by placing both hands low in the basin and scooping water onto each one.
13. Hold fingers pointed down into the basin, waiting for the last drop of water.
14. *To be shown now or later:* pick up nail brush in right hand and dampen it. Put some soap on it, scrub left hand nails, then right. Rinse brush and replace. Rinse hands again.
15. Take hand towel in right hand, opening it. Dry the left hand – each finger. Repeat with the right hand.
16. Facing the child, show how to fold the towel into thirds.
17. "Now we'll clean up."
18. Bring out the bucket. Empty the dirty water into the bucket.
19. Pour some fresh water into the basin. Swirl it around and empty into the bucket.
20. Go with the child to empty the bucket to the appropriate place.
21. Extra water in pitcher could be used for plants (or could add fresh water for the child to use).

22. Dry the basin, pitcher, table (drops/spills), bucket.
23. Replace the pitcher in the basin.
24. Place the wet towels on the drying rack, replacing with fresh towels.
25. "See how much lotion I take." Take a small amount (generally just less than one full push).
26. Replace jewelry.
27. Invite the child to repeat.

Points of Interest/

Consciousness

- ⊕ taking off jewelry
- ⊕ good lather of sap
- ⊕ soaping of each finger
- ⊕ final drop of water from hands
- ⊕ dirty water
- ⊕ swirling water in basin
- ⊕ final drop of water from basin to bucket
- ⊕ water drops on the table
- ⊕ small amount of lotion

Direct Aim(s)

Independence in care of self, concentration

Indirect Aim(s)

Coordination of movement

Age

3

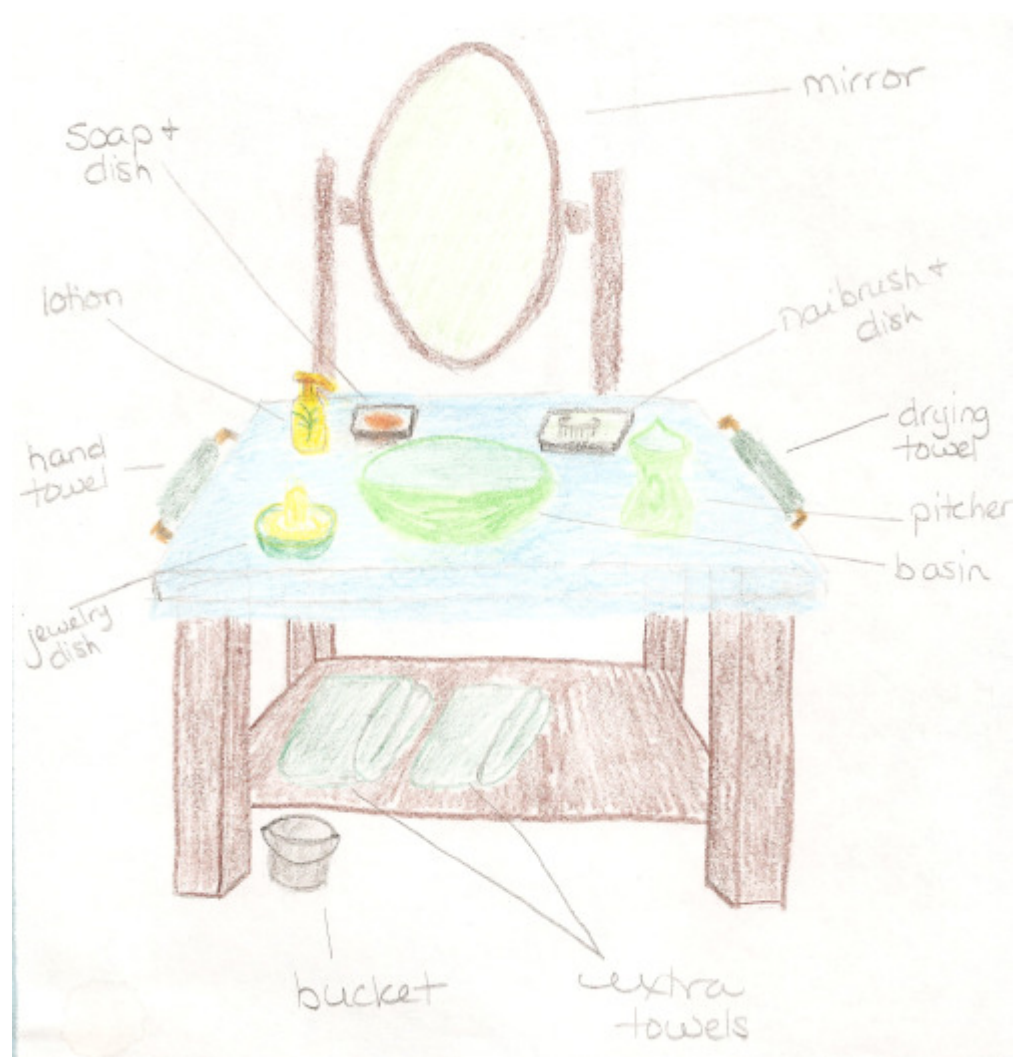
Language

Basin, pitcher, soap dish, jewelry caddy, swirl, lotion, nailbrush, hand towel, dish towel (aka drying towel)

Endnote(s)

will also need to show the child how to wash hands at a sink
don't use 'glycerin soap' (does not lather)
use warm water to help lathering
wear long sleeves if possible to show how to push them up

This seemingly arcane method of washing hands really helps the child to slow down and focus, developing the foundation for much rich development to come.



Care of the Environment

How to Use a Dustpan and Brush

Materials

a metal or plastic dustpan and a small hand brush that fits into the width of the dustpan; 3-4 sets in attractive colors with smaller ones for crumbing tables (sets for tables are hung higher than those for the floor)

Prerequisite

None

Presentation

1. (out of sight of the children, plant a mess, if needed – utilize all natural opportunities)
2. Invite an individual child or a small group by pointing out the mess. "Would you like me to show you how to clean up such messes?"
3. Take the child(ren) to the material (dustpan and brush). Show how to carry it and have a child bring it to the area.
4. *If the dustpan and brush are connected:* show how to disconnect them.
5. Squatting, use tiny strokes to sweep the mess into a small pile; tap to remove excess.
6. Show how to place the dustpan, near the pile, pressing firmly against the floor.
7. Sweep the dirt into the dustpan, tapping to remove excess.
8. Show the line of dirt.
9. Turn the dustpan perpendicular to the line and sweep again.
10. Repeat until the line disappears.
11. Show how to tilt the dustpan back, with the brush holding the dirt inside.
12. Show how to dump the mess into the wastebasket, brushing off the dustpan, then gently rubbing the brush bristles against the edge of the dustpan to clean it.
13. Show how to put the material away.
14. "Now you can sweep anytime you see a mess."

Points of Interest/

Consciousness

- ⊕ Making the dirt into a pile
- ⊕ The line of dirt and diminishing line of dirt
- ⊕ Placing the dustpan perpendicular to the line of dirt
- ⊕ tilting the dustpan back

Direct Aim(s)

Independence in care of the environment

Indirect Aim(s)

Coordination of movement

Age

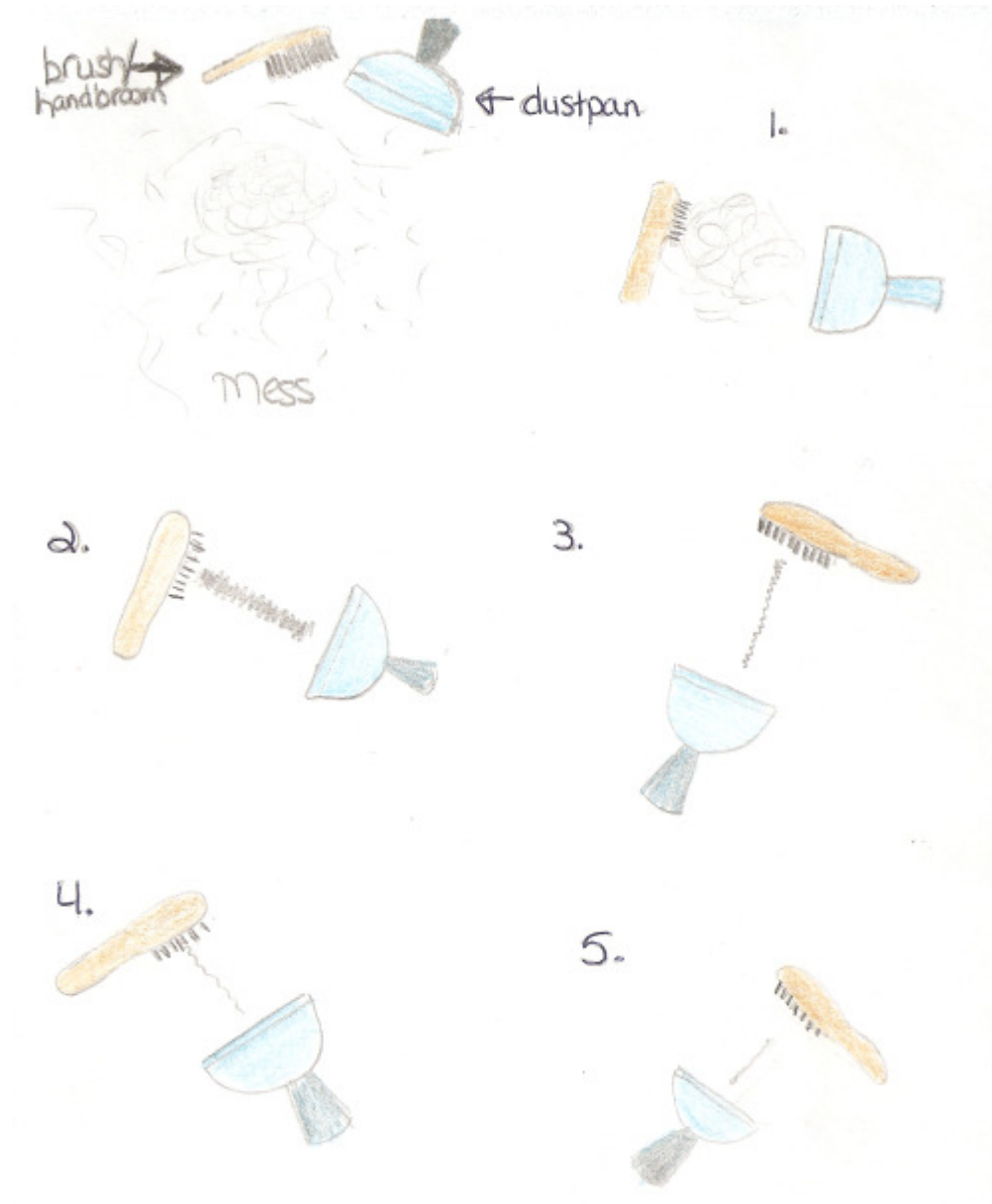
2.5-3

Language

Dustpan, brush, bristles, silent butler, wastebasket

Endnote(s)

A natural situation is best, but a prepared situation is fine (do not let the children see you purposely making a mess!)



How to Peel & Cut Fruits/Vegetables

Materials

tray with bowl for peels, bowl for cut food, cutting board, small cloth for spills, vegetable peeler and paring knife on individual small trays; dish for washed food for peeling and cutting usually stored in fridge or from washing activity; oilcloth and ring, apron.

Prerequisite

how to wash fruits and vegetables

Presentation

1. Invite an individual child. "May I show you how to peel and cut fruits and vegetables?"
2. Show where the materials are kept and how to carry them.
3. Put on aprons and wash hands. "We always wash our hands before working with food."
4. Invite the child to unroll the oilcloth.
5. Remove the items from the tray in the order of use: dish for peels and ends, tray with peeler, tray with paring knife, plate or bowl for cut pieces, drying cloth, cutting board.
6. Take the dish for the uncut items to the food location and choose an item (in this example, a carrot).
7. "Now I'll show you how to cut the carrot."
8. Show the child how to hold the paring knife. "The blade is sharp and we never touch it. See the dot? This is always up when we are holding the knife or cutting."
9. Show how to cut off the top and bottom of the carrot by securing the carrot in the left hand, cutting the end, setting the knife down on its tray, placing the end in the dish for ends/peels, turning and repeating. Replace knife on the tray.
10. "Now I'll show you how to peel."
11. Show how to hold the peeler. "We never touch the blade." Indicate the dot for being on top.
12. Peel in long strokes, away from self, starting in the middle of the carrot. Place each peel on the dish in between every stroke. Turn and repeat with the other half or invite the child to do the other half.
13. "Now I will cut the carrot into small pieces."
14. Cut the carrot into about 1 cm pieces, using a slight sawing motion.
15. Invite the child to place the cut pieces in the snack area for eating.
16. Empty the peels into the compost.
17. Take the dishes to be washed, carrying them on the tray.
18. Clean the oilcloth.

19. Put the materials away and remove aprons.

20. Invite the child to enjoy his carrots.

Points of Interest/

Consciousness

- ⊕ choosing the fruit/vegetable
- ⊕ sliding motion of the peeler
- ⊕ seeing the peels of the carrot
- ⊕ the dot on the top of the knife
- ⊕ discarding the ends of the carrot

Direct Aim(s)

Independence in care of the environment

Indirect Aim(s)

Coordination of movement

Age

3.5-4

Language

name of fruit or vegetable, peeler, blade, cutting board, ends, peels, indicator

Endnote(s)

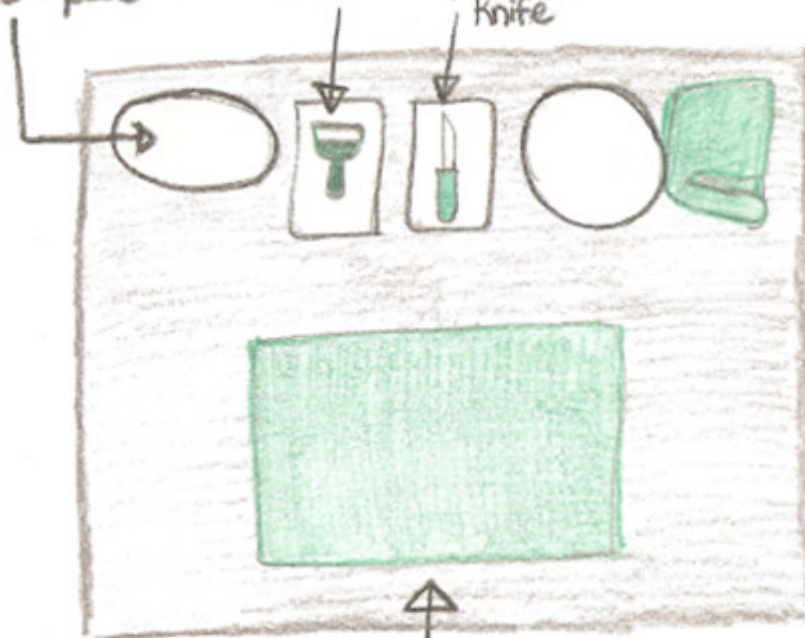
Safety is essential: always ensure that the child is using the peeler and knife in a safe manner.

Intervene immediately if either is being used improperly. Never use a dull knife as the pressure needed to cut with them increases.

dish for
ends + peels

tray w/
peeler

tray w/
paring
knife



dish for
uncut item

cutting board

Grace & Courtesy

Introduction to Grace and Courtesy

(Care of Social Relationships)

The goal of grace and courtesy lessons in the casa dei bambini is to have the child feel at ease in most social situations and to be able to communicate effectively and respectfully. We give the necessary tools for the child to feel confident and poised; tools which include specific language depicting empathy, courtesy and respect. Aspects of grace include serenity, patience, gentility, poise, elegance and control of movement; courtesy extends from grace and is directed towards others where grace is more internal and personal. Characteristics of courtesy include generosity of love and respect, honor and equality, and politeness. Without grace, it is hard to be courteous and without courtesy, there can be no social cohesion or peace. We hope to build self-respect as well as respect for others, and to develop self-discipline. Persons of all ages who have respect for differences of backgrounds, who can communicate effectively, have the ability to speak a message clearly, concisely and respectfully; a message that will therefore be heard and which is more inclined to be received.

(more to this introduction)

How to Draw Attention

Materials: two children prepared out of sight of the others

Prerequisite: none

Presentation

Prepare two children ahead of time.

Invite a small group of children.

1. Have a small conversation about gaining attention. "Sometimes we need someone's attention who is busy at that moment."
2. "We will demonstrate how to politely gain someone's attention."
3. Start a conversation with one of the prepared children. The other child approaches and stands in the periphery of the adult's vision.
4. The adult notices a natural pause in the conversation and says, "Excuse me one moment," turning to the other child. "Is there something I can help you with?"
5. "Could you help me with the bow frame?" (for example). "Yes, I'll be there when I am finished with this conversation." The child agrees and returns to his work to wait.
6. The adult should return to the conversation for a moment before returning attention to the whole group.
7. Invite children by name to show how to gain attention.
8. Repeat with all the children in the group.
9. Invite the children to practice whenever they like and to use the skill.

Points of Interest/Consciousness:

- ⊕ standing quietly not saying anything
- ⊕ waiting for the teacher to come and help

Direct Aim(s)

- Independence in grace and courtesy
- care of relationships
- development of the will

Indirect Aim(s): Coordination of movement

Age: 2.5-3

Language: Attention

Endnote(s)

From the beginning, the adult should insist that there are no interruptions during presentations so that this time is absolutely respected (the only exception being serious emergencies).

Continue the conversation with how to draw attention when adults are busy, brainstorming the various ways of gaining help, from others (ask a friend), use a different approach to solving the problem, wait patiently, or other ideas as generated by the children.

Control of Movement

Introduction to Control of Movement: **Walking on the Line**

(3-page introduction)

Walking on the Line

(several pages)

This work has been shown to be excellent for any and all children displaying the typical symptoms of ADHD, as well as a typically developing children. Allow the work of walking on the line to be available at all times, so that a child having a hard time working or concentrating can come to the line at will, re-center and return to work.

Introduction to Control of Movement: **The Silence Activity**

2-page introduction

Silence Activity

(several pages)

Never use the silence activity for discipline. Any children not yet normalized can go for a walk with the assistant.

Visual Art

Introduction to Visual Art

The art experiences provided in each casa dei bambini will differ with culture, location, availability of materials, and decision of the directress. Materials could be chosen to represent various media or based on sensorial exploration of the various elements of art, but always the emphasis is on providing keys to further exploration and use, not to provide every single art experience possible, focusing on how to use the various media. First, the child is provided with keys to explore the elements of art (color, form, line, shape, texture, space, and value), and later we name and use them in studying works of art by the children and by various masters of art. See the Primary Language album for art appreciation presentations.

(more to this introduction)

Beginning Sewing

Materials: basket; sewing board or vinyl stretched in an embroidery hoop with equidistant holes around the circle; large needle permanently threaded with ribbon or yarn with a bead tied at the end

Prerequisite: none

Presentation

1. Invite an individual child. "Would you like me to show you how to sew?"
2. Show the materials and invite the child to bring them to the table.
3. Remove the items from the basket; place the hoop on the table.
4. Hold the needle in the middle with your right hand, the hoop in your left.
5. Show the child how to put the needle through the hole at the top of the hoop by turning the hoop to show the holes in the back; place the needle through the hole, turn the hoop over and show the needle poking through; pull the needle through with your right hand until the bead stops the thread.
6. Repeat with the hole to the right going front to back; continuing around the hoop until the last hole is threaded.
7. Show the child how to remove the threaded needle, one hole at a time, using short laps.
8. Place the needle back into the basket.
9. Invite the child to repeat.

Points of Interest/Consciousness

✚ seeing the completed pattern

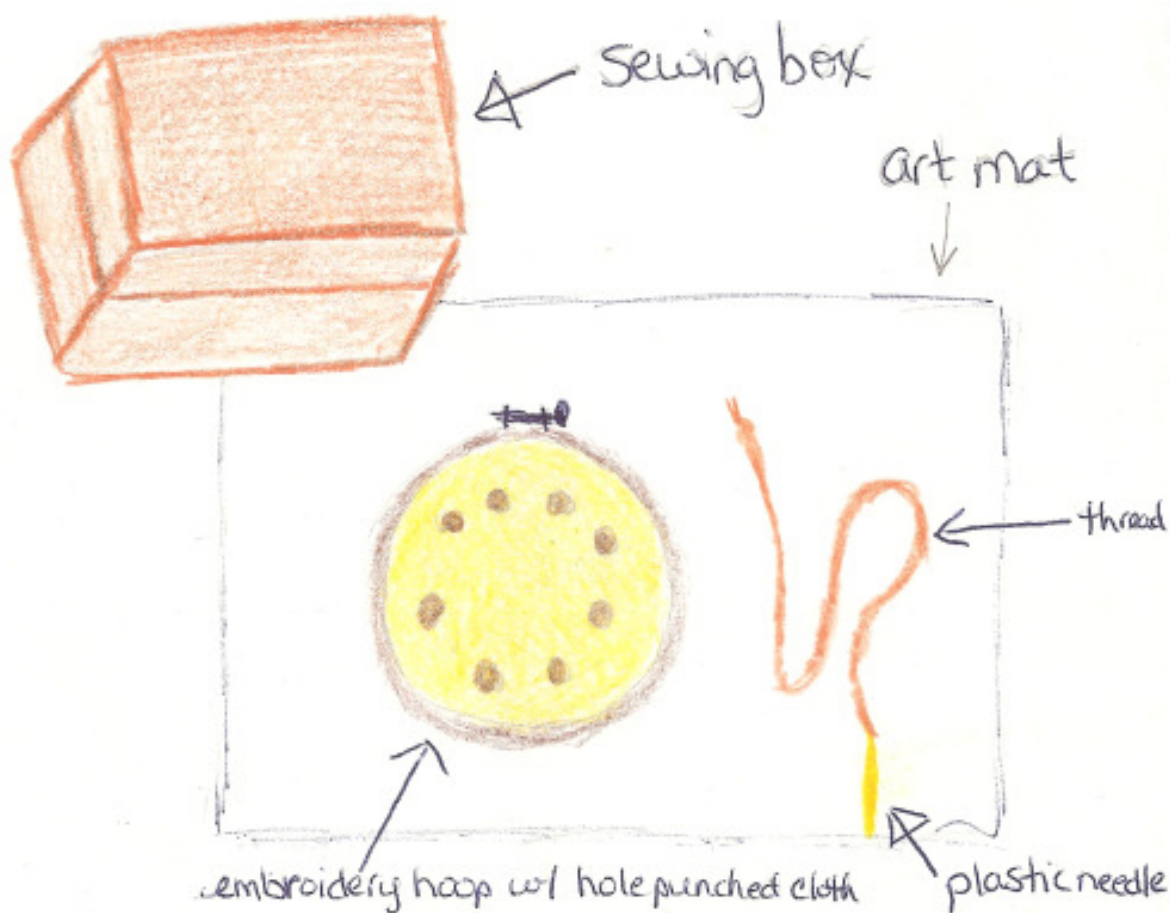
Direct Aim(s): exploration of texture, expression of self

Indirect Aim(s): Coordination of movement

Age: 3

Language

Endnote(s)



Appendices

Primary Sensorial Scope and Sequence

Use as a GUIDE only! This is not rigidly set in stone!

Each area is divided into roughly 6-month segments corresponding with how most children develop. YOUR child might be much more interested in one area for a while and fly ahead and seem behind in another area. That is OK! Just follow your child's inner needs.

E = entry into primary – when it is noted in “end” column, it is really meaning that you just do it when you start primary and keep going as long as needed.

The start column indicates the ideal time to start; the end column is the usual time a child has mastered the concept if he started at the start time, but this is NOT set in stone. Follow YOUR child; start at the beginning and proceed as quickly or as slowly as your child's needs dictate.

Primary Exercises of Practical Life Materials List

The following list is a POSSIBLE materials list. Please adjust as you deem appropriate for your environment. Homeschools will not need everything or even most things out at once; and the display of the items will differ from schools. You might want to keep all food-prep in the kitchen area for example, with a low table or a tall stool just for your child. Plant care items can be stored on their own trays next to where you keep your plant care items. At particular times, bring these items into the school area for presentation, introduction and practice; then place them back where they naturally fit.

Homeschools, atriiums and other smaller environments, may also wish to streamline the presentations for the wood/metal/glass polishing so that the same set-up is used throughout.

Printable Materials

Included in the following non-numbered pages:

- Color wheels:
- Grace and Courtesy labels:
- Cutting papers:



Keys of the World

Primary Montessori

Language Album

Keys of the World

Primary Montessori

Ages 3-6 years

Language Album

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Keys of the World

"We are convinced that the child can do a great deal for us, more than we can do for him. We adults are rigid. We remain in one place. But the child is all motion. He moves hither and thither to raise us far above the earth. Once I felt this impression very strongly, more deeply than ever before and I took almost a vow to become a follower of the child as my teacher. Then I saw before me the figure of the child, as those close to me now see and understand him. We do not see him as almost everyone else does, as a helpless little creature lying with folded arms and outstretched body, in his weakness. We see the figure of the child who stands before us with his arms held open, beckoning humanity to follow."

*~Dr. Maria Montessori
Education and Peace*

Language

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Introduction to Language

Introduction

Spoken Language

Written Language: Overview

Written Language: Writing

Written Language: Cursive

Written Language: Reading

Musical Expression and Language Extensions

Conclusion

Introduction to Spoken Language

The child enters the casa with a functional vocabulary of between 300-500 words, if all has gone well in his first years of life. Ideally, when a child leaves the casa, he will have a vocabulary of 10,000-15,000 words. Being in the sensitive period for language, we try to provide full experiences as well as many activities and opportunities for the child to not only increase his vocabulary, but to strengthen his understanding and clarity of expression.

Some of the child's first experiences in the casa will be in the area of language, with the orientation game, having a conversation, reading and telling stories, and the like. We provide cards without words that are specifically for learning the spoken names of familiar and increasingly unfamiliar objects. We play a question game leading the child to the idea that everything he does or uses has a source and a chain of events leading up to his personal experience with it.

After the child has more experience in the casa in the areas of practical life and sensorial, we begin to provide the language for these activities, studying the parts of familiar objects, as well as exploring poetry, biological classifications and life cycles, further work with the sensorial apparatus for land and water forms, art and culture. We play lots of oral language games which will later be repeated in word study, using written and printed labels to extend the child's previous knowledge into new realms.

These activities lay the foundation for further language work. If other areas of language are not progressing as the directress hopes, the directress should return to the beginning of the language range to re-establish a stronger foundation – perhaps something was missed. Children will enter at various levels and the adult should respect each child for his individuality while still working to establish a strong language foundation with him.

Materials Note: In a home or very small class setting, the card materials mentioned in this section can be the image cards taken from the later 3-part cards; in a large class, you will want to duplicate these image cards.

Also, each card set should have a "key card" which is a descriptor card of all the items represented (so the entire life cycle, or a bowl of mixed fruit, or a photo of a group of flags – something to indicate a group of what is in the packet).

***Spoken ~
Vocabulary
Enrichment***

Life Cycles

Materials

A series of pictures that show the life cycles of different animals and a control card for each animal.

(in the reading area have some booklets or books on life cycles of various creatures; some that match the cards provided, some that are different)

Prerequisite: Some experience with the real animal to be shown, if possible.

Presentation

1. Invite 1-3 children. Have a small conversation about life cycles (i.e. baby siblings).
2. Set the cards out randomly on the table or mat. Place the control card at the top or keep it in the packet and place it at the end.
3. Start with the (eggs/first life stage) and place the card, giving its description.
4. Place an arrow and repeat with the next stage, completing a circle to the adult creature passing on life to new offspring.
5. "Let's do it again – you can put it in order this time."
6. Invite the child to do the work with a friend.

Control of Error: The adult, other children, and the color coding in the materials.

Direct Aim(s)

To help foster the child's reverence for life. To build the child's vocabulary. To lay the foundation for future work in the area of biology. To help the child classify the environment.

Indirect Aim(s): Preparation for writing and reading.

Age: 3+

Endnote(s)

Give the initial language during the presentation and follow-up with a three period lesson if needed.

Examples to use: monarch butterfly, frog, chicken, robin.

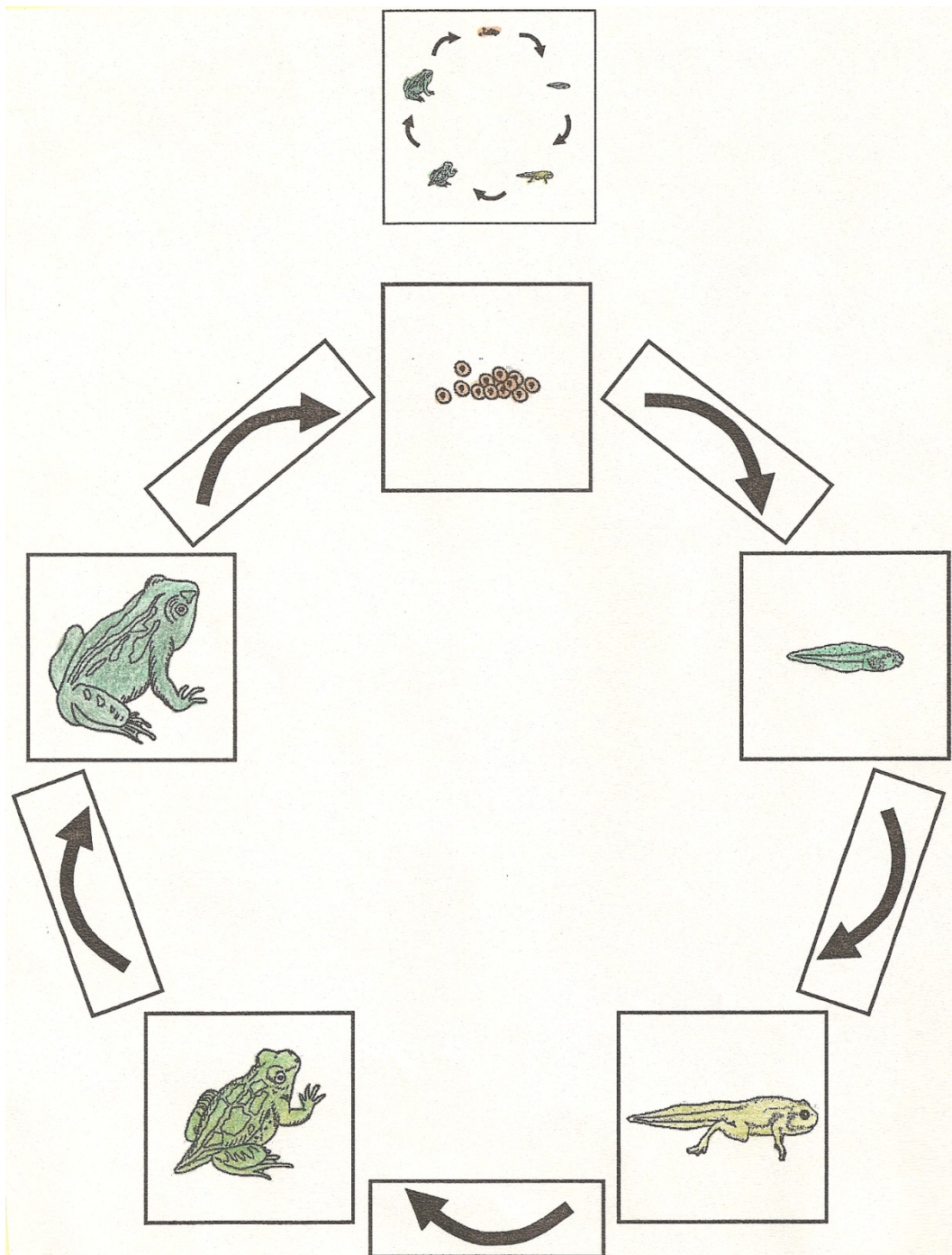
Frog: egg, tadpole, rear legs, froglet, adult frog

butterfly: egg, caterpillar chrysalis, butterfly

bird: egg, stages of development

chicken: egg, stages of development

Note: As of the date of last editing, Enchanted Learning website on the internet is a great source for all sorts of card materials, include life cycles.



***Spoken ~
Language
Development***

Cultural Folders

(album page itself removed for sample – description of the materials remain)

cultural album

"The core of geography work in the primary class is a collection of geography pictures. Through pictures, we give children a visual impression of life in another country. Collect a great variety of pictures for geography work. To avoid confusion, the pictures are categorized:

- #1 Envelopes contain a variety of pictures of a continent.
- #2 Envelopes contain categories of the needs of man for each continent (transport, houses, people, spiritual life, scenery)
- #3 Envelopes contain a variety of pictures of a country.
- #4 Envelopes contain pictures of a specific category (any category of choice of a country).
- #5 Envelopes (not normally numbered) - state children live in (for USA, in this case)
- #6 Envelopes (not normally numbered) - city children live in or near.

To give children an understanding of a life in a particular country, one can focus on a specific country for a period of time. This is referred to as a Celebration of a Country. Over a period of time, introduce children to pictures, stories, food, dances, songs, and many other experiences related to that country."

Land and Water Form Outline Maps

Materials

Outline maps of the world. Classified nomenclature cards of land and water forms (use reading cards with labels). Red pencil.

For exercise 2: outline map of each continent and on outline map of the child's home country.

Prerequisite

Land and water pouring exercise; Land and water form folders.

Presentation

1. Invite an individual child.
2. Show the child where the maps are located. "We'll use the world map first."
3. Invite the child to choose one of the land and water forms. Also bring a red pencil.
4. Look at the card that the child has chosen (i.e. lake). "We'll use this map to find all the lakes."
5. Invite the child to locate the first one.
6. Show the child how to color it in carefully.
7. Invite the child to locate another example of a lake and color it in.
8. Ask the child to point out other examples of lakes which he will color in.
9. The child continues locating and coloring all the lakes he can find.
10. When complete, show the child how to label the map according to its geographical form. (i.e. lake).

Exercise 1: Other land forms

Repeat the process for all geographical forms.

Exercise 2: Each land form on continent and country maps

Repeat the above process for each form on various continent maps and/or the child's own country. The child should know the appropriate language (i.e. names of countries and continents) – and the child can be introduced to the names of some of the landforms he is labeling - in a much later presentation.

Control of Error

The adult and other children.

Direct Aim(s)

To present the idea of land and water forms in another way. To stimulate conversation and help generate ideas.

Indirect Aim(s)

Preparation for geography

Age

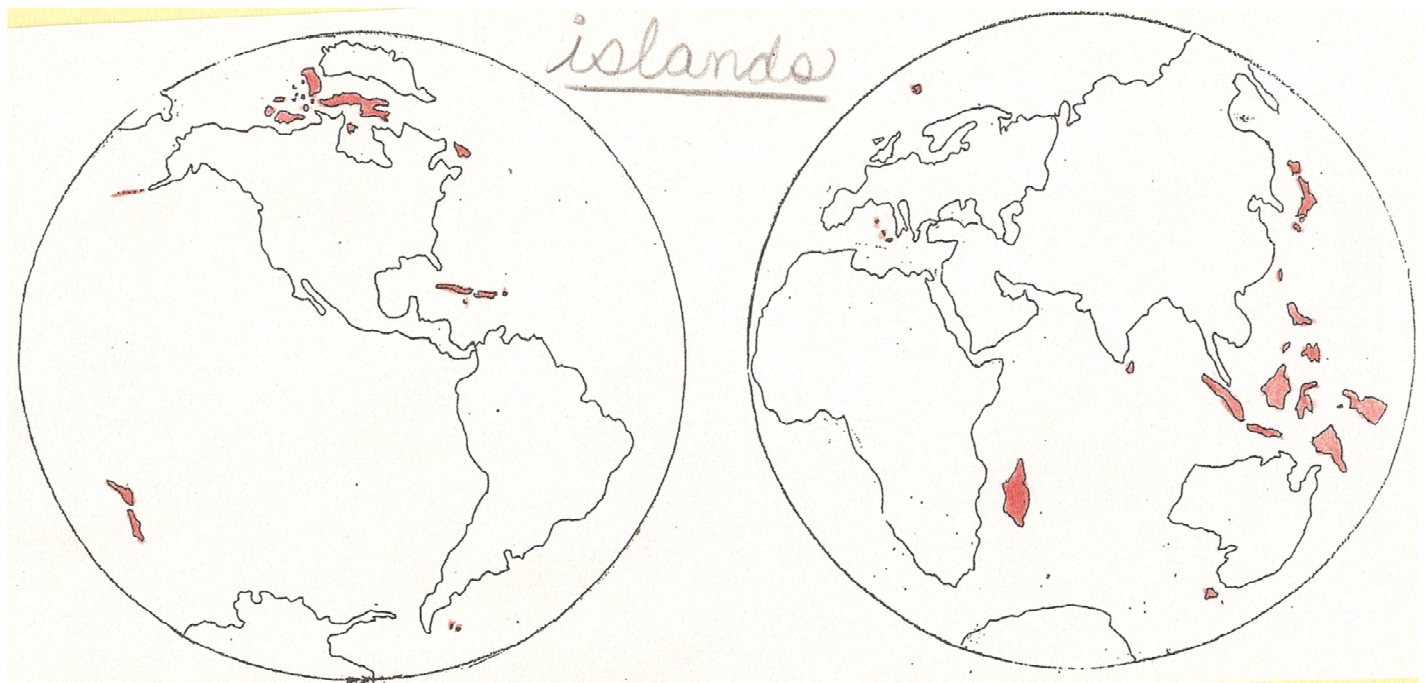
3-6

Endnote(s)

In language and math, we use red pencils to highlight new information. Have a good atlas that shows all lands and waters.

Alternative or in combination: Use real colored maps and/or an atlas with smaller outline maps on which the child colors and labels landforms he has discovered on the real map.

The child may use this work in combination with the land and water form folders.



Writing

Introduction to Writing

3-page introduction

An example of hints throughout the albums:

Materials Note: There are several movable alphabets. The first one we use is the wooden cut out letters in blue and red stored in a large compartmentalized box. Later for further sentence writing, we will use a small movable alphabet which has the letters on small cards – the letters themselves are the same colors as the large movable alphabet; cards with punctuation may also be included in this box. Later again, we will use a phonogram alphabet set which is 2 boxes: 1 with the entire alphabet in red; 1 with the entire alphabet in blue – these letters are also on small cards or wood tabs. This phonogram alphabet is also used for word study and you will need a coordinating all-black set as well (this is definitely required for elementary use). Classrooms may want to also have 2 or more additional colors for larger group work (elementary will want to add black and one other color for sure, for a total of 4 of these alphabet sets).

Sound Games

Materials

Prepared note cards with many interesting and familiar words, especially nouns. These note cards are for your reference and not actually presented to the child. A series of small pictures or objects representing different sounds. There can be 8-10 pictures per sound in a packet. Objects that will be gathered from the environment at the time of the presentation. Presentation tray. Sandpaper letters for Game #6.

Prerequisite

Some spoken language activities

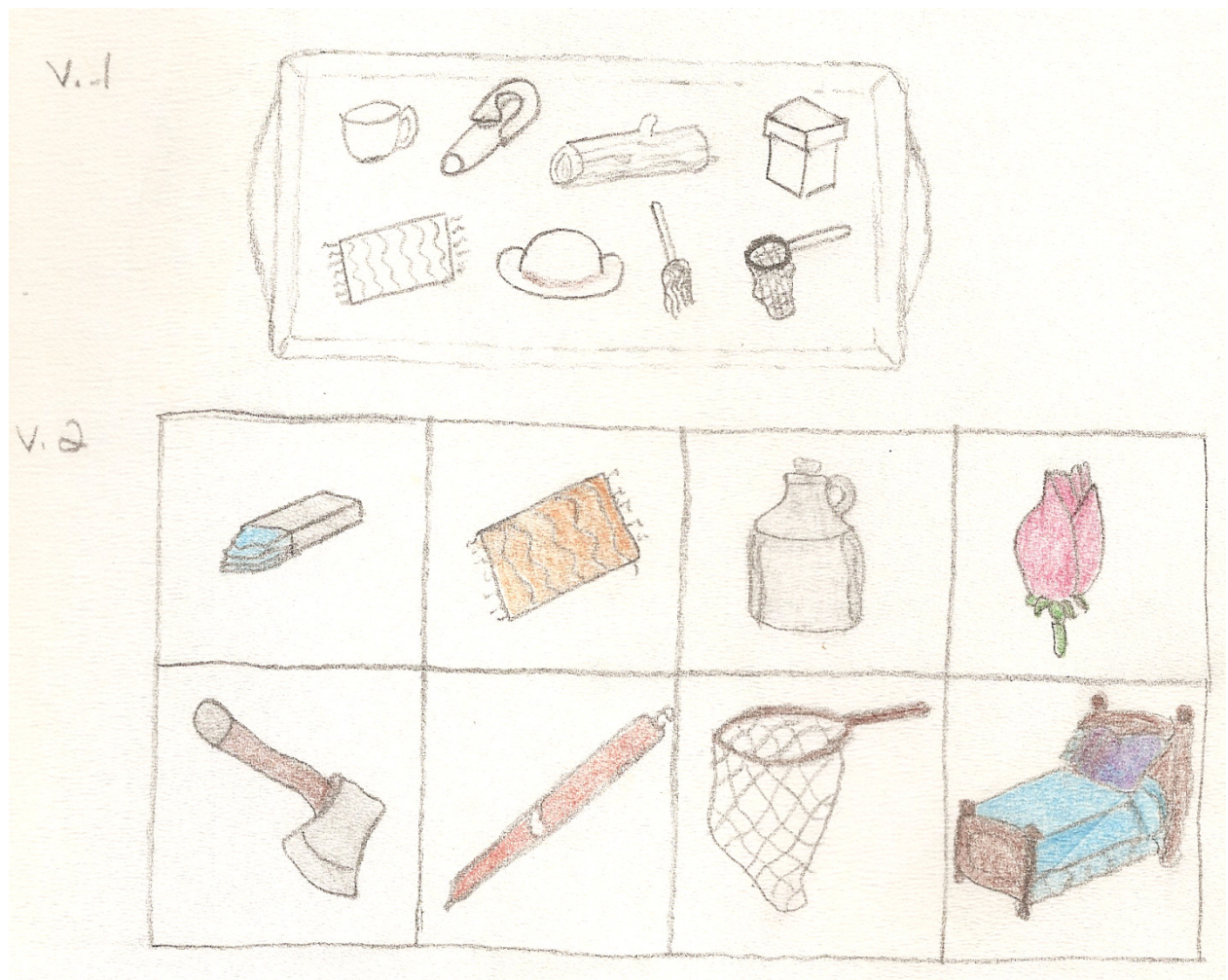
(several page album page)

Age: 2.5+

Endnote(s)

All work in language begins with sound consciousness, so these games are important to do from the beginning. Teach the parents and assistants to do these games, which can be done with or without objects.

NOTE 2: These games are about exploration, not necessarily mastery. Move forward when the child has the basic concept, not necessarily correct every time. It is very possible you will discover some sounds a child cannot yet distinguish (which is why we move forward even if they can't hear every sound). And you may find speech articulation issues; many of these will work themselves out but are points of observation for you to note.



7 pages of 4 columns each – reference words for sound games.

Metal Insets

Materials

Two slanted stands, each with five metal frames/insets. The frames are pink and the insets are blue with a small knob in the center: rectangle, square, triangle, pentagon, trapezoid, oval, circle, ellipse, curvilinear triangle and quatrefoil, all with the exact measurements of the geometry cabinet; eleven pencil containers corresponding to the eleven tablets in Color Tablet Box II, each with 3-4 shades of that color; colored and white paper 5.5 inches square; 2-3 drawing pads slightly bigger than the frames; 5-6 pencil holders with grooves for three pencils; 4-5 trays to hold the materials.

Display: All straight-lined figures are on one stand with the curvilinear figures on the other - rectangle and ellipse are displayed on the far left of their respective stands.

(3 pages removed for sample)

Age: 3-3.5, generally closer to 3.5

Endnote(s)

How to give feedback: If the child asks for your opinion on one of their drawings, consider the following: mention something concerning a point of interest or consciousness to the child, coupling with a positive comment; compare it with his past work; describe what you see; be honest and say if you like it, if you do.

There are far more ideas available online. Create a **simple** chart with some samples – and **encourage** exploration. The point here is to give some ideas, a foundation of skills (keys) for further art exploration and discovery. Invite the child to discover what more possibilities there are!

stage 1: lines ~ 1cm apart



stage 2: lines closer together



stage 3: lines almost overlapping



stage 4: 2 colored pencils
2 insets



stage 5: 2 pencils
1 frame



stage 6: 3 pencils
3 insets



stage 7: 1 inset
3 pencils



stage 8: lines inside a shape
up to 3 pencils



stage 9: collage -
construction paper



stage 10: lighter/darker



stage 11: shaded



***Writing ~
Art of
Handwriting***

Sand Tray

Note that the sand tray is included here and not with the beginning work with the sandpaper letters.

Writing on Paper

Materials

Plentiful supply of paper in a variety of sizes and styles; include the following:

- unlined strips of paper, short and long
 - lined and banded strips of paper of various sizes
 - small sheets that are blank at the top for a picture and one banded line at the bottom
 - larger sheets, blank at the top with several lines at the bottom
 - large pieces of banded paper for stories or poems
 - regular wide-line paper for the older children
- supply of lead pencils; tray for carrying materials, sensitizing tray, if necessary.

Prerequisite: knowledge of most of the sandpaper letters, sound and symbol; chalkboards

Stage 1: Unlined Paper

1. Same procedure as Chalkboard Stage 1 and 2.

Stage 2: Banded Paper

2. Same procedure as Chalkboard Stage 3 (4 lines): write a letter in the middle (child repeats); show the ascending letters (child repeats); show the descending letters (child repeats).

Stage 3: Connecting Two Letters

3. Bring two letters that connect at the bottom. Have a discussion explaining that “when we write words, we need to connect or hitch the letters together – the pencil does not come off the paper.”
4. The child traces and says the two sounds.
5. “I’ll show you how to write these letters together, to hitch them. I’ll write the (a) first, then the (t). Watch where I start.” Do so.
6. “See how the pencil stays on the paper.”
7. Invite the child to repeat.
8. Repeat the procedure with a phonogram that starts at the bottom.
9. “When we write words, we hook many letters together – sometimes they hook at the bottom and sometimes at the top.”

10. Show others and invite the child to practice hooking them.

Stage 4: Connect 3 or More Letters

11. Same as stage 3 with more letters.

Stage 5: Illustrated Word

12. Show the child the quarter sheet of paper with one line at the bottom, with the rest blank. Invite the child to write a word of his choice on the paper (guiding him towards nouns to start with), then to illustrate the word. Only model it first if the child will not be turned off by adult "perfection."

Stage 6: Illustrated Phrase or Sentence

13. Show the child the half sheet of paper with one long line at the bottom, blank above. Invite the child to write out a phrase or sentence and illustrate it.

Stage 7: Illustrated Short Story

14. Show the child the large (8.5x11 in) paper with half blank and half with banded lines. Encourage him to use this paper to write and illustrate his stories. If more than one page, he can illustrate any or all pages, using fully lined paper for pages without illustrations.

Stage 8: Illustrated Poem

15. Invite the child to write or copy a poem onto the largest paper with a blank space and to illustrate it afterwards.

Stage 9: Wide-lined Paper

16. Provide the child with wide-lined paper on which to write.

Stage 10: Fountain Pen

17. Write with a fountain pen using lined paper or nice stationary.

Control of Error

Visual discrimination; comparison to the sandpaper letters; keeping within the lines.

Direct Aim(s)

Preparation of the hand for writing on paper and in smaller spaces.

Indirect Aim(s)

Development of creative writing and total reading.

Age

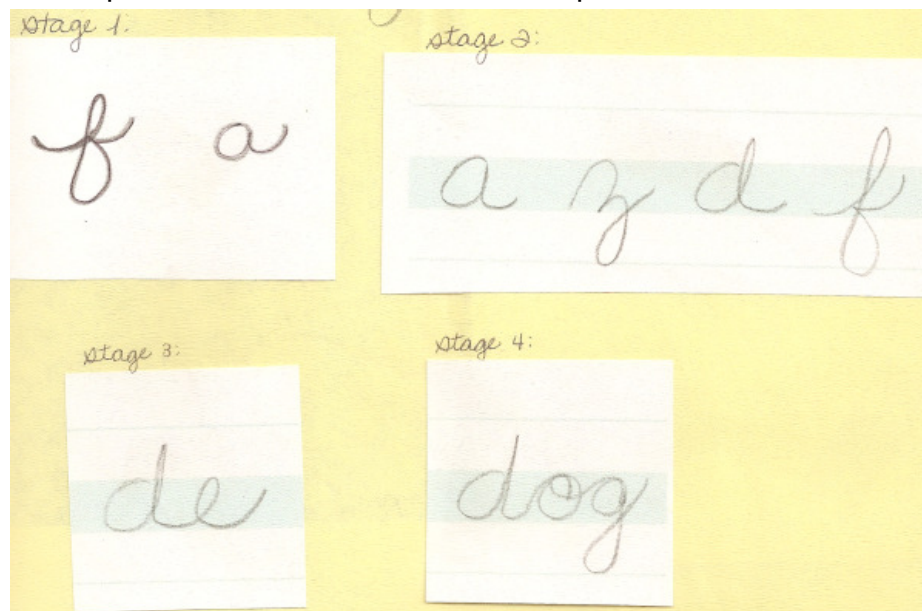
4+ (after all the sounds are known)

Endnote(s)

All the art of handwriting is parallel to the movable alphabet and metal insets and we usually start at the design stage. Our goal is to support the child in writing words and stories as quickly as possible; the mechanics of writing supports this process but should not become drudgery. All chalkboard activities should be done on paper as well; often done parallel. When using shaded line strips start with the small and work larger. Introduce and show the function for each paper. All of this work depends on the interest of the child.

Pencils should NOT have erasers. White erasers should be available as needed but not formally presented.

Banded line paper is expensive – create and use a template.



stage 5:



sun

stage 6:



the snow is fun

Handwriting Charts

Materials

Six writing charts with the alphabet in the following versions, using standard banded-lined paper mounted on cardboard:

- 1: lowercase cursive
- 2: lowercase cursive next to its counterpart in print
- 3: uppercase cursive and lowercase cursive
- 4: uppercase cursive
- 5: uppercase and lowercase in print
- 6: uppercase cursive next to uppercase print

Display: On the shelf either standing or laying flat and stacked.

Prerequisite

Writing on chalkboards; writing on some of the paper; interest in writing.

Presentation

Start with the chart with all lowercase cursive (or the one most familiar to the child)

1. Invite an individual child. Introduce the charts and bring a writing pad, pencil, banded paper (with all lines). Show all five charts; "we'll take this one with the letters the way you know them now. This will help us practice our handwriting."
2. Model how to copy the handwriting chart on personal paper by writing the first one.
3. Invite the child to finish copying all the letters.

Chart 2: lowercase cursive and print

1. "We have more charts. Let's look at the next one. See these letters? You know these ones (point to the cursive ones). We call these other ones print or manuscript. Some look similar to the cursive letters, some look very different; this is the style of writing we sometimes see when we read books and signs."
2. Can note an even different "a" now or later: a.
3. Invite the child to point out which ones look the same and which look different.
4. Copy the cursive and print a; invite the child to copy the remaining letters in similar manner.

Other charts:

1. Continue presenting the remaining charts in similar manner, noting how each one is used and the differences perceived. Bring a book to show the use of capitals in writing (names, specific places, to begin sentences).

Control of Error

Visual discrimination. Comparison to the sandpaper letters. Keeping within the lines.

Direct Aim(s)

Preparation of the hand for writing on paper and in smaller spaces.

Indirect Aim(s)

Development of creative writing and total reading.

Age

4+ (after all the sounds are known)

Endnote(s)

This is a modified presentation. The official AMI album does not have chart 6; however it has been found to be very helpful especially for older children coming in who already know print.

a b c d e f

g h i j k l

m n o p q

r s t u v w

x y z

Reading ~ Phonetic

Introduction to Reading

Two-page introduction

Phonetic Reading Commands

Materials

Box, basket or packet with printed reading commands; writing tray.
Commands are now printed in black (no blue/red coloring).

Prerequisite: Phonetic reading cards/words (or any reading prior to this)

Presentation

1. Invite a small group of children and bring the writing tray.
2. "I have something for you to read and act out."
3. Slowly write out a phonetic command, trying to relate them to the casa.
4. The children take turns reading and acting out the written commands.
5. Introduce the prepared slips and encourage the children to play this game with their friends. "You can also write your own commands for each other on paper."

Control of Error

The adult and other children.

Direct Aim(s)

To help the child leap from reading individual words to reading commands.

Indirect Aim(s)

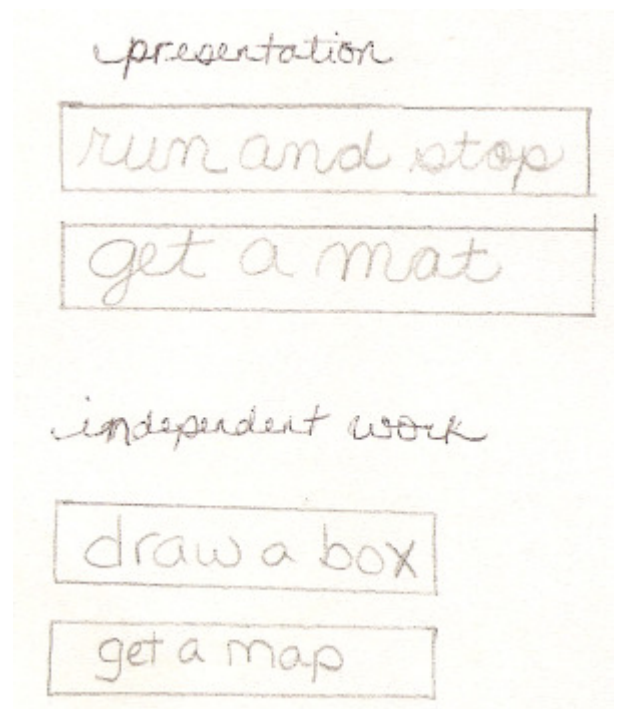
To prepare the child for creative writing and total reading.

Age

4-5-5

Endnote(s)

Encourage parents to put phonetic commands in their child's lunch box. We can also put commands in the children's cubbies. Older children can write commands for new readers.



Phonetic Booklets

Materials

Booklets, one or more of each type: picture on the left and phonetic 1) name 2) phrase 3) sentence on the right; or the booklets may be made with both picture and word/phrase/sentence on the right. In a full classroom, there is a booklet for each phonetic sound. The sound for that booklet is in red; the rest of the letters are in blue.

Prerequisite

Phonetic reading cards

Presentation

1. Invite an individual child and choose a book.
2. The adult can read through it first or the child can read it.
3. Have a discussion about the topic.
4. The child chooses a booklet to read.
5. Encourage the child to read with his friends.

Control of Error

The adult and other children.

Direct Aim(s)

To help the child leap from individual words to phrases and sentences.

Indirect Aim(s)

To prepare the child for interpretive and total reading.

Age

4-5-5

Endnote(s)

These booklets are an extension of phonetic reading cards to further help with fluency. Do not have too many booklets in the environment because we want to move on to phonograms.

i

6 six

wig

pig

pin

milk

bib

pit

lips

lid

Reading ~ Phonograms

Phonogram Shadowbox

Materials

Small shadowbox with several objects representing different phonograms such as cake, bell, show, loon, clock, etc. Two phonogram moveable alphabets.

Prerequisite

Phonogram object box; parallel to puzzle words.

Presentation

1. Invite an individual child and bring the two alphabet boxes to the table or met.
2. Go with the child to the shadow-box and choose an object with a phonogram.
3. "Let's write this word – what's the first sound? The next sound? The next? (place each letter/sound in blue until reaching the phonogram) Ok that's the one we need in red (place the phonogram in red)." Finish spelling out the word.
4. "All of the objects in this box are written different than they sound."
5. Take out another set of the phonogram and place under the object between the object and its name.
6. Think of more words with this phonogram and write them.
7. Encourage the child to write this phonogram in his book or dictionary.
8. Tell him to look for it in reading books too.

Exercise 1: 2 Objects with the same phonogram sound but different spelling

Take two objects with the same sound but different spelling (such as pail and cake). Show the child the phonogram for each one. Set them up similar to above with two columns. Ask for words with this sound and place them according to their spelling (if the child suggests a word with an entirely different phonogram, explain that there are more ways to write this sound and that is one of them that we will learn at a later time - do not write it out at this time).

Control of Error

The adult and the dictionary

Direct Aim(s)

To give the child keys for writing and reading. To show the child that phonograms are irregularities found in the English language.

Indirect Aim(s)

To prepare the child for interpretive and total reading.

Age

4-5-5



Puzzle Words

Puzzle Words

Materials

Numbered packets containing cards on which are written words of irregular construction (the, two, come). Arrange the cards in packets with 6-8 cards in each set. Number the back of the cards to correspond with the numbers on the packets; small movable alphabets; pencils and paper; booklets for keeping track of puzzle words to be used with the exercises.

Prerequisite

Phonetic reading (puzzle words can be done mixed in with phonetic reading as well as phonogram reading)

Direct Aim(s): To help the child read and write words that are non-phonetic and not included in the basic phonograms.

Indirect Aim(s): To prepare the child for creative writing and total reading.

Age: 4.5+

Reading Classification

Quick Notes for this section:

Children do NOT need to be fluent readers to get started in this section. Sometimes they will pick up the reading from this work; or they will pick up other skills such as matching letters, locating sounds with which they are familiar and use those contextual clues to help them. Even these minimally-reading skills can be strongly reinforced through this practical hands-on work, thus strengthening and building the child's reading ability.

This material is NOT the time to be teaching the child any new information. It is a consolidation work taking all those skills learned in various places, all that knowledge learned through real experiences and other Montessori presentations, and connecting it all.

This work DOES get the children's hands back onto work they may not have touched in a few months or a year or so. So there is a review of past experiences built in to the Montessori sequence when using all the albums in their entirety – sensorial and practical life and mathematics are going to be reviewed through the use of the written word. This may entice the child to utilize those other materials a few more times as well!

Do not try to introduce new knowledge here (perhaps little tidbits on an already-familiar subject, but that is it). There is plenty of time for expansion later.

For now, focus on the connection of their reading skills.

Presentation III: Definitions

Note: Not everything goes to this definition stage. Sorting works, for example. And if you have 3-part cards for 20 subjects, perhaps only 8 of them go to the definition stage – you do NOT need to take every single card packet you have to the definition stage.

Materials

Collections of pictures dealing with geographical, geometrical, biological, and scientific terms including the following:

- *definition packets for each classification each with a picture on the left side of the page and the definition printed on the right side of the page. The word itself is printed in red.

- *Three packets or boxes for each classification stage that contain the following:

 - Stage 1: complete definitions with the defined word in red

 - Stage 2: definitions in which the defined word in red is cut out separately from the rest of the definition

 - Stage 3: definitions are cut into separate phrases, with the defined word in red

These packets or boxes are marked as Definition 1, 2, or 3 with the picture name.

Collection examples: parts of a flower, parts of a tree, parts of a bird

Direct Aim(s)

To introduce the written symbols for words already known from vocabulary enrichment. To give the child practice in reading.

Indirect Aim(s)

To prepare the child for creative writing and total reading.

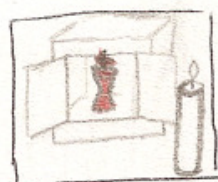
Age: 5+

Endnote(s)

These stages are not done in one day, but over a series of days. The names of the objects and qualities associated with the pictures used in reading classification have already been introduced in spoken language. These activities add the dimension of the written word to concepts already known by the child. Also, the child should have been introduced to several phonograms and puzzle words before being introduced to reading classification.

Presentation 3: Definitions

Stage 1:
pictures w/
complete
definitions
(word + picture
part in red)



The **ciborium** is a golden cup with a cover. It contains consecrated hosts, where the Good Shepherd is present.

Stage 2:
pictures w/
word cut out
(word + picture
part in red)

The **ciborium** is a golden cup with a cover. It contains consecrated hosts, where the Good Shepherd is present.

Stage 3:
pictures w/
definition cut
into strips
(word + picture
part in red)

The **ciborium** is a golden cup with a cover. It contains consecrated hosts, where the Good Shepherd is present.

1 picture per set of 3 stages
(all stages housed together
and same picture used for
all 3 stages)

***Reading:
Function of
Words***

Introduction to Function of Words

(two page introduction)

The Verb

Introduction

A verb is a word that expresses an action, condition, or state of being. It is the major element of the predicate of a sentence: the part of the sentence that makes an assertion about the subject. There are two kinds of verbs: intransitive verb (indicates a complete action without being, accompanied by a direct object that does not form the passive. The energy of the verb remains in the name of the action, there is no object) and transitive (accompanied by a direct object and from which a passive can be formed. The energy is transported to the direct object and completed by it).

Materials

A packet or box marked with the verb symbol (large red circle) and the number 1 containing 10-12 cards on which are printed intransitive action verbs; packet or box marked with the red circle and the number 2 containing prepared labels printed with commands using transitive verbs. Have a supply of labels with different commands to exchange from time to time with those in the packet; box of grammar symbols; writing tray; recycling basket.

Prerequisite: The Preposition

Presentation 1: Intransitive Verbs

1. Invite 2-3 children to set up the farm.
2. Bring the writing tray, recycling basket and the symbols box.
3. Write a slip for each object – just the noun (i.e. pig, sheep, horse).
4. Have the children take turns bringing these objects.
5. Write an intransitive verb such as clap, hop or hum.
6. Ask the child to read and bring the object. They may look confused.
7. "I can't bring it."
8. "Ok, can you do it?"
9. Child performs the action, until the directress says, "stop." If the child stops beforehand, ask the child to keep going until the command, "Stop,"
10. Write another intransitive verb for the other children.
11. Ask the children to read and bring. If they can't bring it, can they do it?
12. "Give me the horse." etc. or "Take the horse back." etc. to return the items.
13. Mix in commands to return the intransitive verbs.
14. "I can't bring back hop." "Well, where did it go?"

15. Eventually, discuss the difference between an action word and an object name.
16. Introduce the symbol for action words. Place it above the word on one of the slips.
17. Introduce the prepared labels for the child to read, do and symbolize.

Presentation 2: Transitive Verbs

1. Begin as above, writing slips such as "dust the table" or "polish the mirror."
2. Each child reads and acts out.
3. Invite them to symbolize their phrases.
4. Introduce the prepared labels to also read, act out and symbolize.

Presentation 3: Past Tense

1. Invite 2-3 children.
2. Write a command such as "bring a cube."
3. The child reads and does.
4. While the child is doing the action, ask, "What are you doing?" Even as the child answers, keep asking. Keep going until the action is complete. (I'm bringing the cube)
5. When the action is complete, ask, "What did you do?" (I brought the cube)
6. Symbolize the action word.

Note 1: There are no prepared labels.

Note 2: The child learns that the action word generally changes after the action is completed.

Presentation 4: Non-movement verbs

1. Invite 2-3 children.
2. Write a sentence with a non-action verb such as "plan a snack."
3. The child reads, acts out and symbolizes.
4. Invite the children to think of some.

Double Function of Words

Examples:

push the cart
 push the broom
 open the window
 lock the door
 open the door
 peel an orange
 empty the pocket
 shovel the snow
 buckle the frame
 snap the frame
 lace the frame
 mop the floor
 wax the floor
 polish the shoe
 polish the brass
 brush the hair
 mix the cake
 set the table

Presentation 5: Double function of the verb

1. Invite 2-3 children.
2. Write a phrase that when transposed means something else, beginning with a command, such as "the orange peel" or "the push cart."
3. Write the same phrase again.
4. Cut and transpose one copy.
5. "Does it mean the same thing? (no) But does it make sense? (yes)"
6. Symbolize every word in both phrases (to compare the use of the words).

Note: this is the ONLY verb presentation in which we symbolize the entire phrase.
Discuss the pattern of the symbols.

Presentation 6: Actions without objects

1. Invite 2-3 children.
2. Write one slip with an intransitive verb (hum), and a second with a transitive verb (drink a glass of water). Give both slips to separate children at the same time.
3. Usually, the first will stop when the second one does.
4. "Why did you stop?"
5. Explore why the drinking must come to an end, but the clapping and humming could go on for a long time.
6. Repeat with other actions.
7. Introduce the prepared labels.

Control of Error: The adult, other children and the prepared labels.

Direct Aim(s): To help the child become aware of words in reading, especially the function and position of the verb.

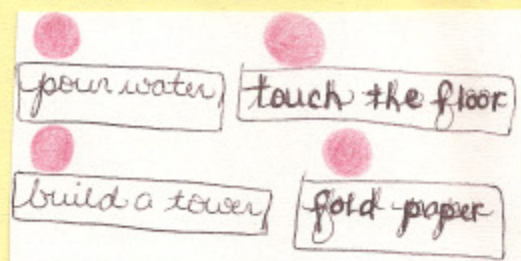
Indirect Aim(s): To prepare the child for creative writing and total reading.

Age: 5-6

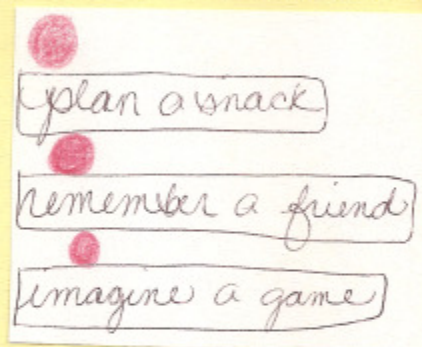
Presentation 1: intransitive



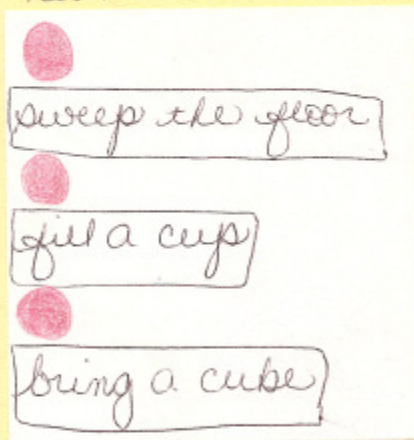
Presentation 2: transitive



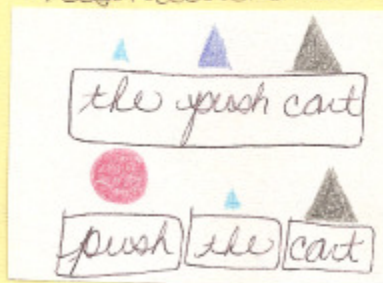
Presentation 4: Non movement verb



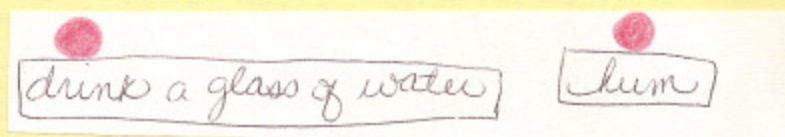
Presentation 3: Past tense



Presentation 5: Double Action of the Verb



Presentation 6:



Word Study

Introduction to Word Study

Word study activities are parallel to reading analysis activities but it is best to have sufficient work with reading analysis before starting word study. Word study activities are presented based on the child's interest and abilities. We look at the nuances of language (the details – what is the same – different?). We'll see what happens when we join two words together in compound words, look at root words and word families as well as animal collectives and animals and their young. We will also look at words that can be confusing such as homophones. We try to help the children have a deeper understanding of the structure of language. We use lots of cards and charts, requiring an orderly method of display.

We generally start these activities at 5 ½ to 6 years of age and they are first done orally before looking at the written words. The aim of all of this work is to help satisfy the child's desire for words and to support creative writing and total reading. Most initial presentations are done individually; this age prefers a greater amount of group work and the work quickly moves that direction with the children sharing and experimenting with words.

Again, these activities are going to be very similar to those done in elementary; there are nuanced differences. Use the elementary years for review, for more complex words (reading level as well as vocabulary expanse) and additional personal research in these areas. In other words, do them now AND do them later!

Word Families

Introduction: A word family is formed when various prefixes, suffixes and other words are added to a root word changing its meaning.

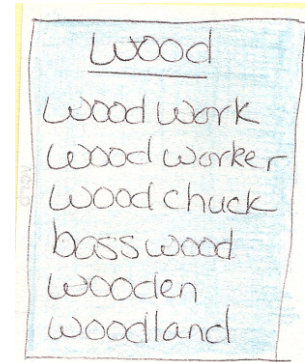
Materials

Packet or box of printed cards on each of which is printed a root word along with some members of its word family; prepared chart of word families on which is printed a number of root words and examples from their word families.

Prerequisite: prefixes and suffixes

Presentation

1. Review root words, prefixes and suffixes.
2. Choose one card. Read the root word and use it in a sentence.
3. Continue reading all the words on the card.
4. "What do you notice about these words?"
5. "Words that share a root word are part of a word family. We can add suffixes, prefixes and sometimes both to change the root word."
6. Discuss the meaning of each word, particularly in relation to the root word. Use each word in a sentence.
7. Repeat with other cards.
8. Encourage the child to write sentences with these words.
9. Introduce the chart.



Control of Error

Dictionary and the adult

Word Families				
wood	wooden	woodwork	woodland	boots
fish	fishing	fishmonger	fishy	raft
well	welcome	wellborn	hardy	hardware
hard	hardship	harden	birthday	bab
day	daily	midday	childlike	biweekly
child	children	childish	weekday	motorcycle
week	weekly	weekend	cyclist	fitting
cycle	bicycle	tricycle	artistic	the
month	monthly	bimonthly	beloved	saddest
art	artist	artwork	sadder	
love	lovely	lovable	goodbye	
sad	sadly	sadness	goodnight	nightdress
good	goodness	goodnight	midnight	
night	nightly	midnight	moonlight	
moon	moonlight	honeymoon		

Direct Aim(s)

To satisfy the child's insatiable desire for words, vocabulary enrichment, and exploration of the composition of words

Indirect Aim(s)

To prepare the child for creative writing and total reading. Preparation for an etymological study of words

Age: 5-6

Animal Sound Names

Materials

A packet containing two sets of cards. One set has the name of an animal group and the other has the name of the sound it makes. The cards are all the same color, but one of each pair has a dot on the back; two white cards that have the words sound name and animal on one each; prepared chart of animals and their sounds.

Animal	Sound
monkey	chatter
bear	growl
hen	cluck
tiger	roar
wolf	howl

Prerequisite: previous word study work

Presentation

1. Bring the chart and place it face down.
2. Take out and separate the key cards.
3. Separate the sound names from the animal names (using the dots on the back).
4. Place the sound names in a column under the title "sounds."
5. Place the animal cards in a column to the right.
6. Read the first sound name and look for the corresponding animal card.
7. Place the card in the appropriate row under the title "animal."
8. When complete, check the control chart.

Control of Error: Dictionary, dots on the back, prepared chart.

Direct Aim(s): To provide further reading experience; to expand the child's vocabulary; to help the child become conscious of different names for animal sounds in our language.

Indirect Aim(s): To prepare the child for creative writing and total reading. Preparation for an etymological study of words

Age: 5-6

Endnote(s): There are also audio tapes and CDs with different animal sounds that one can get for the casa. These would also be good to listen to when going on walks. The audio material is a nice supplement to this activity.

Animal Sounds

Animal	Sounds
bear	growl
chicken	cluck
cat	meows
dog	bark
cow	moo
donkey	bray
duck	quack
elephant	trumpet
fox	bark
frog	croak
goat	bleat
hen	cluck
horse	neigh
lion	roar
monkey	chatter
pig	grunt
snake	hiss
tiger	roar
wolf	howl

Reading Analysis

Introduction to Reading Analysis

When a child is a fairly fluent reader, we begin reading analysis activities; usually this will occur around five and a half years of age if there have been no difficulties or delays. These activities help the children to look at the structure of sentences, analyzing the various parts of the sentence, and are begun just before beginning word study with most of the activities parallel to one another.

In reading analysis, we identify the action words and ask various questions around it. We have previously worked with phrases (groups of words without a subject or verb), but will now work with clauses (groups of words which contain a subject and verb); there are two types of clauses: independent and dependent.²⁰ In the casa, we deal with simple sentences.²¹

We use many descriptive phrases. The children have been indirectly prepared for reading analysis through the function of words activities particularly with the verb and continuation of commands. Now we focus on the relationship of the two main parts of the sentences: subject and predicate. The subject is that part about which something is being said and the predicate says something about the subject and includes the verb. We have several describing phrases in addition.

There are three stages to reading analysis with the most complicated part keeping the material in order:

Stage 1: Box 1 – Loose material: 2 black red circles and 4 blank black arrows

Stage 2: Box 2 – 2 black arrows w/printed questions (1 large/1 medium), black circles, red circle

Stage 3: Box 3 – red circle, 3 printed black arrows, 3 black circles, 10 orange arrows, 10 orange circles

Box 4 – 2 blue arrows, 2 blue triangles, 1 black triangle

It is important to remember that the purpose of reading analysis is not to teach grammar or sentence diagramming. Reading analysis gives the child an understanding and an appreciation of sentence structure and style, leading to total reading and creative writing.

²⁰ Independent clause: can stand alone as a sentence, begins with a capital and ends with a terminal punctuation.

Dependent clause: cannot stand alone as a sentence.

²¹ 4 types of sentences: simple (1 independent clause and no dependent clauses; can be mistakenly missed by its length, as it can be short or long; can have compound subjects as well as compound verbs and predicates); compound (at least 2 independent clauses joined in one of three ways: comma, coordinating conjunction, semicolon); complex (1 independent clause and 1+ subordinate clause); compound complex (at least 2 independent clauses legitimately bound and 1+ subordinate clause).

Simple Sentences – Stage I

Materials

A box (Box 1) with two large red circles and four black arrows cut out of heavy resume cover paper; prepared sentences taken from good authors, or your own sentences, that might give the child possibilities for interpretation based on the child's interest and ability; writing tray and recycling basket.

Prerequisite: Function of Word activities, especially the verb; ideally an introduction to basic punctuation and capitalization in the Art of Handwriting.

Presentation 1: Hunting the Subject (loose material = paper material)

1. Invite an individual child and show the new material. Bring it to the table with the writing tray and recycling basket.
2. Show how to lay out the two circles and the 4 black arrows to the right.
3. "I'm going to write a sentence for you to read and act out." Write a sentence with a capital, period, 2 actions, one subject – in duplicate, turning one face down to use as the control.
4. The child reads and acts out the sentence.
5. "How many action words do you see?"
6. "What are they?"
7. Cut out the action words and place on the circles (moving them into the middle of the working area).
8. "Who is it that (does the first action)?"
9. Take a black arrow and point it towards the name (placed to the left on its own).
10. Repeat with the second action.
11. Transpose the action words.
12. The child reads. "Does it make sense?"
13. Return the sentence to its original structure, using the control as needed.
14. Repeat with many sentences.
15. Introduce the prepared labels (Simple Sentences I), reminding the child to copy the sentences onto paper to do the work of cutting and transposing.
16. Repeat in the same manner to demonstrate to the child.

Presentation 2: Two Actions – Two Subjects

1. Same presentation as above.
2. Write a sentence with two actions and two subjects.
3. Point the black arrow horizontally between the correlating subjects and verbs.

4. Use the packet for Simple Sentences II.

Presentation 3: Hunting the Object (one action, one subject, one direct object)

1. Same presentation as above.
2. Write a sentence with one subject, one verb and one direct object.
3. Transpose subject and direct object.
4. Use Simple Sentences III.

Presentation 4: One subject, one action, two direct objects

1. Same presentation as above.
2. Write a sentence with one subject, one action, and two objects.
3. Transpose the objects with one another.
4. Transpose the objects with the subjects.
5. Use Simple Sentences IV.

Presentation 5: Two actions, two subjects, two direct objects

1. Same presentation as above.
2. Write a sentence with two actions, two subjects and two direct objects.
3. Transpose the subjects, the verbs or the direct objects.
4. Use Simple Sentences V.

Presentation 6: Introduction to pronoun as object

1. Write a sentence with two actions, two subjects and with a pronoun as the direct object.
2. The child reads and acts out the sentence.
3. "What are the action words?"
4. "Who does each action?"
5. Ask the child what object is being acted upon.
6. If the child says the object rather than the pronoun, say "Yes, that's correct, but it's a bit awkward to say the word twice, so we can just use the word (pronoun) to describe (the noun)."
7. Read the sentence with the duplicate word, then with the pronoun.
8. Transpose the subjects, the verbs, the direct objects – does each make sense?

Control of Error: The adult and the control sentences.

Direct Aim(s): To bring to the child the meaning of words and the meanings of the grouping of words so he can better interpret what he reads. To bring to the child's consciousness the change of meaning or of style when transposing words in a sentence.

Indirect Aim(s): To prepare the child for creative writing and total reading.

Age: 5.5-6

Endnote(s): We do not mention the words verb, subject, direct object, or pronoun in these presentations. Sometimes the sentence names two children. If the child wants, he can ask the other child who is a subject of the sentence to act it out with him. This is good for social interaction.

Simple Sentences ~ Stage 1

presentation 1: 2 actions, 1 subject

Joshua sits and colors.

Mom stands and smiles.

presentation 2: 2 actions, 2 subjects

Joshua sings and Mom listens.

The cat sleeps and the mouse plays.

presentation 3: 1 action, 1 subject, 1 d.o.

Joshua bakes cookies.

The rabbit eats carrots.

presentation 4: 1 subject, 1 action, 2 d.o.

Joshua washes bowls and cups.

The lion hunts gazelles and zebras.

presentation 5: 2 a. 2s 2 d.o.

Joshua pours water and Sylvia cuts fruit.

Amy bakes bread and Jane makes butter.

presentation 6: intro to pronoun as object

Mom mixes dough and Joshua kneads it.

Mom colors a leaf and Joshua laminates it.

Musical Expression

Introduction to Musical Expression

In addition to the sensorial exercises and experiences with the bells involving pitch, we also give the child the language of the bells. He will have experiences with note names, placement on the g-clef, parts of the staff, grading with the written notes, nomenclature, writing and reading music.

The child will not come out of the casa knowing how to play an instrument and may not be able to sing on pitch, however he will have confidence in himself, his abilities and his environment to learn an instrument with relative ease, if he so chooses. These exercises enhance musical appreciation as well as provide the child another way to express himself for his own right as well as to others.

The use of these exercises in the casa, and reinforced in elementary, clarifies the strength of the sensitive periods and the human tendencies: while one can be fully human and not be able to read or play music, we are able to utilize the tendencies and sensitive periods for order, communication, self-expression, language, self-creation and adaptation and others, to expose the child to as many different forms of communication as possible in order to provide a wide array of choices for the child's personal journey through life. His options will be as unlimited as possible, especially as he moves into the creativity of the adolescent years.

Introduction to the Musical Staff:

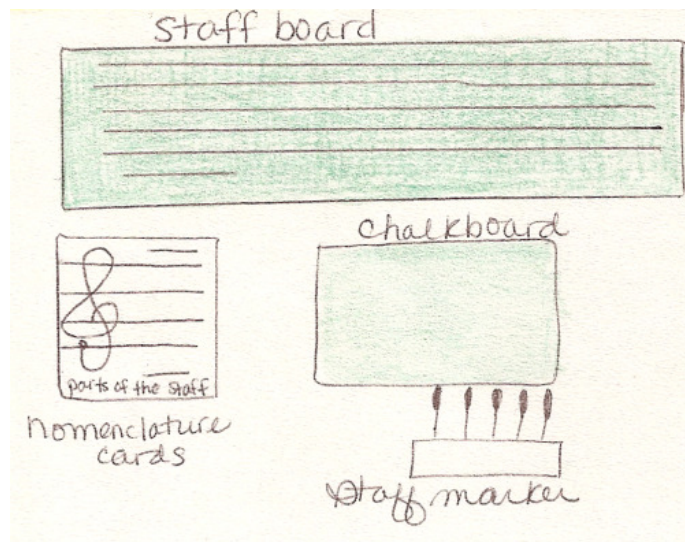
Staff, Ledger Line, G-Clef

Materials

Regular bell setup; green board with five horizontal black lines and one ledger line; G-clef; parts of the staff nomenclature (3-part) cards showing staff, lines, spaces, ledger lines, and G-clef; Chalkboard and chalk; staff marker.

Elementary children can have more detail in the nomenclature.

Prerequisite: Name lessons with the bells



Presentation 1

1. Invite an individual child and show the green board. Bring the board to a table or chowki.
"This is the staff. I'll show you how to carry it."
2. We use the staff for reading and writing music.
3. Trace the first line and say, "this is the first staff line."
4. Repeat with the 2nd through 5th lines.
5. Point out the ledger lines above and below the staff, identifying them.
6. Continue with a three period lesson on the lines.
7. Repeat the above procedure with the 4 spaces.
8. Introduce the G-clef.
9. Place the clef so the end of the curve rests on the 2nd ledger line.
10. Explain that notes on the scale need a clef to have meaning/purpose.
11. Bring out the green chalkboard and introduce the staff marker. "We can use this staff marker to make a staff on the chalkboard." Do so.
12. Point out and name the lines again.
13. Draw some ledger lines. Point to each and label.
14. Introduce the spaces above and below in the same manner.
15. Explain that we use ledger lines to write notes that are higher or lower than the staff lines.
16. Continue with a three period lesson on the lines and spaces.
17. Erase the chalkboard and invite the child to repeat.

Presentation 2: Nomenclature Cards for the Parts of the Staff

1. Show the child the card material.
2. Invite the child to read the labels, match to the cards and check the control set.

Control of Error: The proper number of lines and spaces on the staff board. The child's previous knowledge of counting. The control cards for parts of the staff.

Direct Aim(s): To provide an introduction to the written aspects of music.

Indirect Aim(s): To develop the child's appreciation for music and prepare for creative expression.

Age: 4.5+

Language: staff, lines, spaces, ledger lines, above and below the staff, G-clef, staff marker.

Language Extension

Who Am I?

Materials: Packet with a collection of pictures from one classification such as plants, animals, poets, composers, artists. Each set includes the pictures, the names on separate labels and riddle card that describes each time and asks, "Who Am I?"

Prerequisite: Phonetic Reading, Phonograms, Puzzle Words

Presentation

1. Invite 1 or 2 children.
2. Introduce the materials and choose one classification to bring to the table.
3. Ask 1 child to place the labels in a column as the children take turns reading each one.
4. Set out the pictures in several columns to the right of the labels.
5. Place the riddles in a pile of front of you.
6. Read a riddle and invite the child to find the matching label and picture. If they don't know one, skip it and come back to it.
7. Invite the children to place the matching three cards off to the right.
8. Invite the children to repeat with the remaining riddles, taking turns to read them.
9. When all riddles, pictures and labels have been matched, invite the children to check the answers on the back of the riddle cards.
10. Encourage the children to work on these cards again, or to choose another set of riddles.

Alternatively, labels can be matched with pictures before reading the riddles.

Control of Error: The name on the back of the riddle card

Direct Aim(s): To give the child practice in reading. To foster the child's reverence for life and for human potential. To inspire the child.

Indirect Aim(s): Preparation for creative writing and total reading.

Age: 5+

Appendices

Primary Language Scope and Sequence

e = entrance into primary Montessori, with or without experience, regardless of age

NOT rigidly set in stone; however, this particular scope and sequence tends to be pretty solid across most children.

Primary Language Materials List

This list includes **all** required materials listed in this album. Other materials may be necessary for your particular situation. I have tried to be as specific as tiny clips so that you can assure you have everything covered. You will NOT need all these materials at once and many are easy to make on the fly.

Many of the materials, such as labels, you can just make while presenting or as your child needs them. You will want much of this material to correspond with YOUR environment and its contents.

Primary Language Materials

Masters and Guides

The remaining pages are unnumbered for ease of printing masters and copies without page numbering.

- Guide for the Word Study charts
- Maps for the land/water form outline maps
- Puzzle words chart
- Rhythm cards to print
- United States map



Keys of the World

Primary Montessori

Sensorial Album

Sensorial Table of Contents

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Introduction to Sensorial

Theoretical Introduction

Aims and Purposes

Exercises of Practical Life as a Preparation for Sensorial

History of the Sensorial Material

Characteristics of the Sensorial Materials

The Ten Senses

Types of Sensorial Activities and Sequence

Presentations

Display of Material

Long Term Results

It is to be noted that adaptations to the materials are not necessary, as at the primary level we focus on keys and Montessori observed that certain combinations and certain colors worked very well for the children under age 6. Land and water forms only need the key set of 3 pairs, with an extra two containers for the child to create additional discovered landforms. Additional pieces in the geometry or leaf cabinets can be distractions from the main purpose as well as take away the child's own discovery of these additional shapes. The colors of the tower, stair and rods lend themselves well to the development of aesthetics and true isolation of the qualities inherent to each material (wood grains on natural wood materials for these items is actually quite distracting and makes the work more difficult; even when it seems easy for the child, the child is not getting the deepest and richest possible experience – best to keep it painted! There is other time for natural wood.)

While there can be *some* play with the sensorial materials, it is best to keep total free play with a child's own set of building blocks, separate from the Montessori materials. You will decide and maintain your boundaries for your own environment – a boundary that fosters respect for the people and the materials, and also responsibility for one another.

Visual

Cylinder Blocks

Materials Four natural color wooden blocks, each containing ten cylinders of different dimensions. Each has a knob by which to hold it and each fits into its respective cavity. An indicator stick of wood, approximately 10 cm in length, tray

<i>Cylinder Block</i>	<i>Diameter</i>	<i>Height</i>	<i>Description</i>
Block A	5.5 to 1 cm	5.5 cm	Each cylinder diminishes in diameter successively from thick to thin while the height remains constant. Each varies in two dimensions: length and width.
Block B	5.5 to 1 cm	5.5 to 1 cm	Each cylinder diminishes in all three dimensions successively and regularly from large to small. Each varies in three dimensions: length, width, height.
Block C	5.5 to 1 cm	1 to 5.5 cm	Each cylinder diminishes successively from thick to thin while rising from short to tall. Each varies in three dimensions: while the length and width decrease, the height increases.
Block D	2.5 cm	5.5 to 1 cm	Each cylinder has the same diameter but decreases in height successively from tall to short. Each varies in one dimension only: height.

Note: We present Block A first because the mechanical control of error is most obvious: the cylinders always remain visible even if placed in the incorrect hole. Later, the child may work with either Block B or C, and then D last.

Prerequisite Experience in Practical Life

- Presentation**
1. Invite an individual child. "I would like to show you the cylinder blocks."
 2. Show the child where the blocks are kept.
 3. Point to block A. "Let's take this one."
 4. Show the child how to carry the block on both ends, with thumbs in front and four fingers in back.
 5. Invite the child to carry the block to the table or working mat.
 6. Orient the block so the thickest cylinder is on the left (closer to the child) and the thinnest is on the right.
- Starting with the thickest, take out the cylinders and scatter them:*
7. Starting on the left with the thickest, show how to remove the cylinders quietly using the middle finger, index and thumb (i.e. writing grip).
 8. Lift out the cylinder vertically and place it in front of the block, away from its corresponding cavity.
 9. Repeat with the others, assuring they are randomly scattered.
- Replace the cylinders*
10. Say, "Watch what I do."
 11. Choose either extreme (thickest or thinnest) and use the writing grip to pick up the cylinder.

12. Turn the cylinder so that you and the child can clearly see the bottom of the cylinder.
13. Using facial expressions to show mental analysis, study the cylinder and the surrounding cavities in the block. Begin near the correct cavity.
14. Hold the cylinder over a few possibilities, comparing circumferences.
15. Deliberately hold the cylinder vertically over the correct (estimated) one and gently guide it in until you feel resistance, then release your fingers.
16. Continue to randomly choose cylinders, study them, and place them in their correct cavity.
Invite the child to repeat.
17. When all the cylinders have been replaced in the block, invite the child to repeat.
18. When the child is finished, tell her she can work with any of the other cylinder blocks. Suggest that she work top to bottom, if they are stored.

Exercise 1 Two Cylinder Blocks – after a child has worked with all of them

1. Invite an individual child. "I'd like to show you something else you can do with the cylinder blocks."
 2. Invite the child to choose any two blocks and bring them to the table.
 3. Position the blocks in an inverted V set-up.
 4. Invite the child to help you remove all 20 cylinders and scatter them between the blocks.
 5. Pick up any cylinder and use mental analysis to find the corresponding cavity.
 6. Repeat with two or three more, then invite the child to participate.
 7. Work together to finish placing all the cylinders.
 8. Invite the child to do the same with any two blocks.
 9. Encourage the child to do this alone at first. Afterwards, she may choose a friend to work with. Model how to handle two people working together.
- Note: there are six combinations of blocks: AB, AC, AD, BC, BD, CD

Exercise 2 Three Cylinder Blocks

Repeat the process in Exercise 1, adding a third block to form a triangle. Remove all 30 cylinders and replace them.

Exercise 3 Four Cylinder Blocks

Repeat the process in Exercise 2, adding the fourth block to form a square. Remove all 40 cylinders and replace them.

NOTE: when forming the square, there will be 11 cylinders to a side; any other formation results in a rectangle... so the first cylinder block is placed horizontally; the second is placed vertically on either side (let's say the right, adding the "11th cylinder" to the horizontal row. The third block is again horizontal along the bottom, adding an "11th" to that row; then the fourth fills in the space on the left, with its 11th being the first cylinder of the first block. Particular order does NOT matter; but DO make a square!

Language Lesson 🌀 Language is given in the form of a three period lesson.

Memory Games

Note: Introduce memory games to small groups of children after they have mastered the basic work with the cylinder blocks (including the exercises). The purpose is to extend the use of the material, to assist children in the development of memory and to provide opportunities for social interaction.

Distance Matching/Open-ended

1. Invite 2-3 children for a game with the cylinder blocks.
2. Ask a child by name to choose a block and bring it to the table.
3. Introduce the carrying tray and the indicator stick.
4. Invite a child by name to scatter the cylinders on the tray.
5. With all the children, take the tray to a distant part of the room.
6. Return to the cylinder block.
7. Place the indicator stick inside one of the cavities and say, "I'm going to try and find the cylinder that fits into this cavity."
8. Study the cavity.
9. Lead the children enthusiastically to the distant tray and study the cylinders.
10. After choosing a cylinder, return to the table, remove the indicator stick, and see if the cylinder fits.
11. If it fits, go with the children and return the cylinder to the tray. If it doesn't fit, return the cylinder and try again, having replaced the indicator stick in the same cavity.
12. Once successful, put the indicator stick in another cavity and invite one of the children by name to study it.
13. Go together to the tray and let the child choose the cylinder.
14. Back at the cylinder block, remove the indicator stick. The child places the cylinder in the cavity and then returns it to the tray.
15. Make sure each child has a turn.
16. When the children are done, show them how to end the game as in the closed-ended version.

Distance Matching/Closed-Ended

Play this game the same as the open-ended version, except leave the matched cylinder in the block. When all the cylinders are in the block, invite the children to play again.

Distance Matching/Variation: Scatter in the Environment

1. Invite a child to remove the cylinders and place them on the tray.
2. Scatter the cylinders in the environment (perhaps limited to a particular area). Tell the children not to hide the cylinders or place them on any work, used or unused, respecting the work of others.
3. Play the closed-ended game choosing the cylinders scattered in the environment.

Distance grading/Closed-Ended

1. Invite an individual child to choose a cylinder block and bring it to the table.
2. Invite the child to scatter the cylinders on the table.
3. Place the block in another part of the room.
4. Come back to the table. Sit with the child to your left.
5. "Watch what I do."

6. Using mental analysis, choose one of the extremes.
7. Place this cylinder to the left and in front of the child.
8. Find the next cylinder and place it to the right of the first.
9. Continue grading from left to right.
10. Bring the block back and set it behind the cylinders.
11. Put the cylinders into the cavities and invite the child to check them.
12. Invite the child to repeat, using the same block or another.

Note: to increase the challenge, use more than one block at a time.

Stereognostic Game

(presented after the stereognostic activities have been presented)

1. Invite an individual child for a game.
2. Ask the child to choose a cylinder block and scatter the cylinders on a table.
3. Explain that in this game he will replace the cylinders without looking.
4. Introduce the blindfold if necessary.
5. Put on the blindfold with the tissue inside.
6. Feel carefully and choose a cylinder.
7. Feel dimensions of the cylinder with both hands.
8. Feel the block and find the corresponding cavity.
9. Continue in the same manner until all cylinders are replaced.
10. Invite the child to repeat.

Note: to increase the challenge, use more than one block.

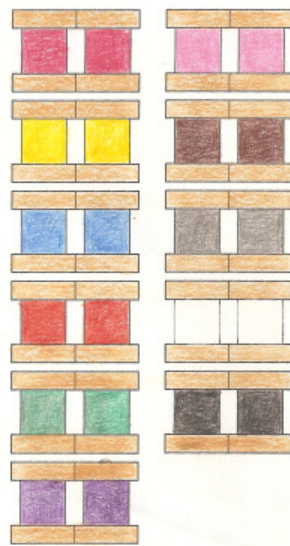
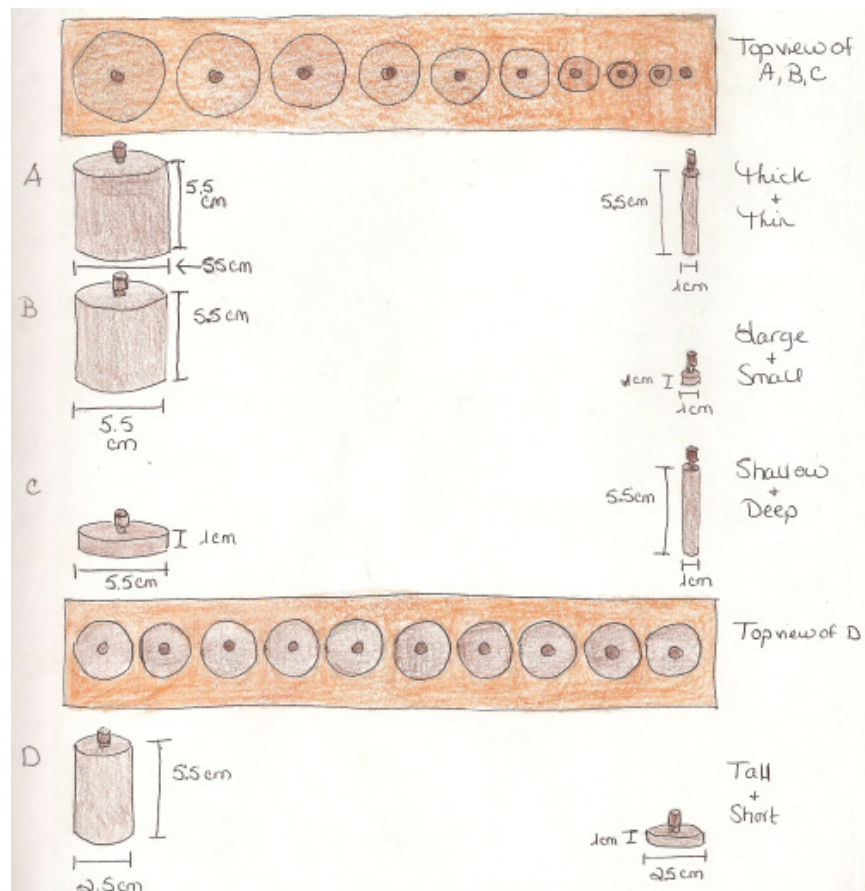
Control of Error Mechanical – one cylinder is left that does not fit

Direct Aim(s) Visual discrimination of size and dimension. This helps the child become conscious of size and dimensions, their differences and variation by means of the visual sense.

Indirect Aim(s) Preparation for writing – helps consolidate and refine the writing grip
Refinement of voluntary movement – control and precision.
Mathematics and decimal system.

Age 3-3.5

Language Cylinder, block, indicator stick
Positive, comparative, and superlative for cylinder blocks are:
Block A – thick and thin
Block B – large and small
Block C – short and tall
Block D – shallow and deep (cavities)
These are given in the form of a three period lesson



Color Box 2

Color Tablets – Box II

Materials A box containing 22 tablets with one pair of each primary color, secondary colors and five shades (pink, gray, brown, black, white) indicator stick and tray for games.

Prerequisite Color Tablets – Box I

- Presentation**
1. Invite an individual child. "I would like to show you more color tablets."
 2. Invite the child to take Box II to the table or mat.
 3. Remove the primary colors, scattering them and ask the child to pair them.
 4. "Would you like to do more?"
 5. Leaving the primary colors set up, remove and scatter the secondary colors.
 6. Invite the child to pair them. Primary and secondary colors are in one column.
 7. Scatter all of them and invite the child to pair them all.
 8. Repeat steps 4-7, adding pink, gray and brown, in a second column.
 9. Repeat steps 4-7, adding black and white to the second column.

Language Lesson 🌀 Language is given in the form of a three period lesson.

Memory Games **Distance Matching/Open-ended**

1. Invite 2-3 children for a game with the color tablets.
2. Ask a child by name to bring Box II to the table.
3. Introduce the carrying tray and the indicator stick if necessary.
4. Invite a child by name to scatter one tablet of each color on the tray.
5. With all the children, take the tray to a distant part of the room.
6. Return to the mat or table.
7. Place the indicator stick on one of the tablets and say, "I'm going to try and find the matching tablet."
8. Study the color tablet.
9. Lead the children enthusiastically to the distant tray and study the tablets.
10. After choosing a tablet, return to the table, remove the indicator stick, and see if the tablet matches.
11. If it matches, go with the children and return the tablet to the tray. If it doesn't match, return the tablet and try again, having replaced the indicator stick on the same tablet.
12. Once successful, put the indicator stick on another tablet and invite one of the children by name to study it.
13. Go together to the tray and let the child choose the tablet.
14. Back at the table or mat, remove the indicator stick. The child sees if the tablet matches and then returns it to the tray.
15. Make sure each child has a turn.
16. When the children are done, show them how to end the game as in the closed-ended version.

Distance Matching/Closed-Ended

Play this game the same as the open-ended version, except leave the matched tablet at the table or mat. When all the tablets are matched, invite the children to play again.

Distance Matching/Variation: Scatter in the Environment

Play the game the same as above, but with the tablets scattered in the environment.

Environment Game

Invite two children for a game with the color tablets. Take out one of each color. Gather an empty tray and invite the children to collect items from around the environment and bring the tray back to the table and match color tablets to the items.

Note: we do not take objects from complete sets; we don't tell the children to ask borrow from another child, but they do it.

Environment Game/Variation

Invite two children for a game with the color tablets. Take out one of each color. Choose one color with the children and go into the environment to find something of that color, bringing it back to the table for comparison (go with the child into the environment if he has found something too big to move). Repeat with each child choosing a color for himself.

Control of Error Perceptual – in the child's visual sense

Direct Aim(s) Discrimination of color. The child becomes conscious of identities and distinctions between colors using the visual sense.

Indirect Aim(s) Preparation for art and design.
Refinement of the aesthetic sense.

Age 3-3.5

Language Names of all the colors in the box given in the form of a three period lesson

Endnote(s) If the child has to match in two rows or columns, assure there is space between them to isolate the colors.

A grace and courtesy lesson on how to ask a child if it is ok to match a color tablet to the child's piece of clothing.

Tactile

Touch Boards

Materials Four rectangular wooden boards:
Board A: divided into 2 equal squares: rough sandpaper and polished/painted
Board B: divided into 10 narrow strips: alternating rough/smooth
Board C: divided into 5 equal strips, graded from fine to very rough sandpaper
Board D: divided into 5 equal strips, graded from smoothest to very smooth

Prerequisite Cylinder Blocks, Sensitizing tray

Presentation

1. Invite an individual child. Bring the materials to the table along with the sensitizing tray.
2. Sensitize fingertips.
3. Secure board A with the left hand and stroke the rough side of it several times with the right hand. Repeat on the right/smooth side.
4. Invite the child to feel.
5. As he feels the texture several times, speak the appropriate words "rough" or "smooth" with a correlating rough or smooth voice.
6. Ask the child to feel the rough side; then the smooth side.

Exercise 1 Board B

Sensitize the fingers if necessary. Repeat above presentation using the right middle and index fingers to stroke the alternating strips from top to bottom. The language can be spoken or not, as the child may say the language himself from the initial presentation.

Exercise 2 Boards C and D

Repeat similar presentation as above, feeling from top to bottom and left to right. No new language is given.

Control of Error Perceptual: in the tactile sense
Mechanical: strips guide the child's hand

Direct Aim(s) Tactile discrimination of texture

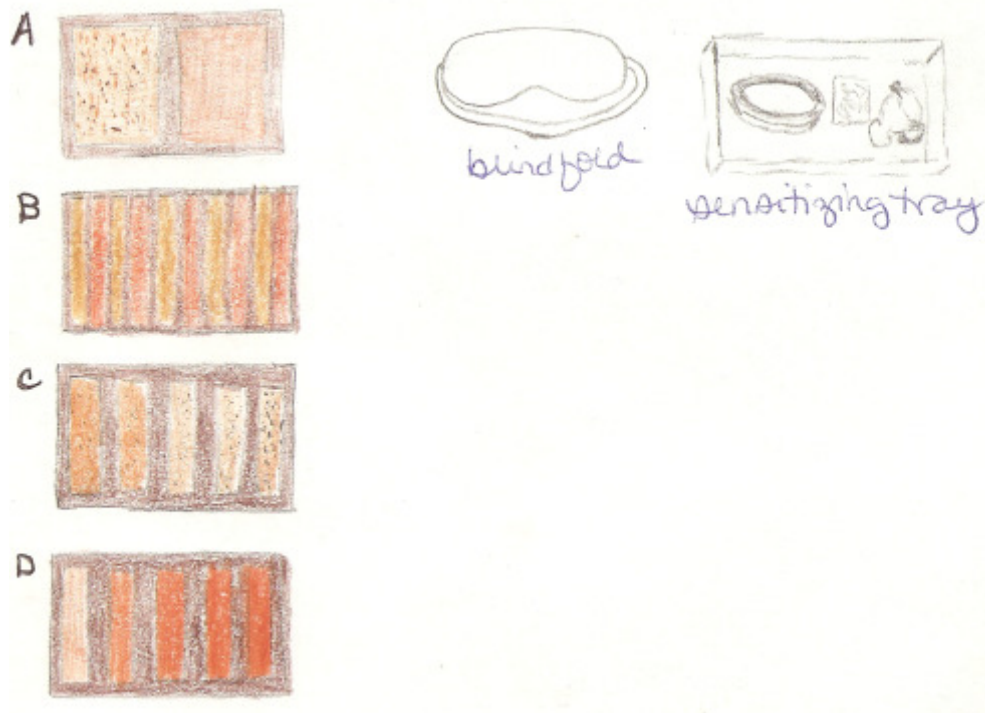
Indirect Aim(s) preparation for writing
lightness of touch
regular spacing and adapting to top/bottom space

Age 3

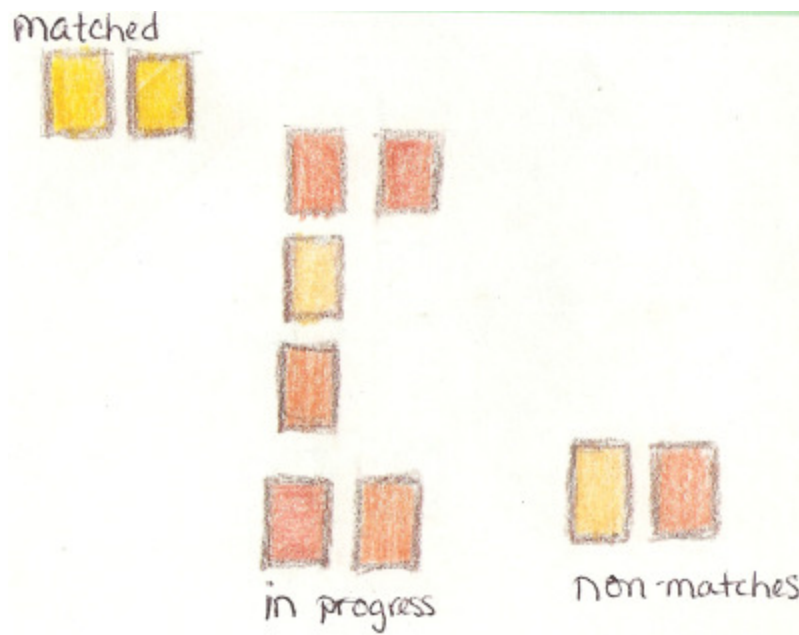
Language rough, smooth; positive, comparative, superlative for rough and smooth

Endnote(s) Any activity that indirectly or directly prepares the child for writing we do at a table or a raised surface.

Touch Boards



Touch Boards



Baric

Thermic

Gustatory

Olfactory

Stereognostic

Auditory

Sound Cylinders

Materials Two boxes, each containing six cylinders; one set with red tops and bottoms, the other with blue. Each cylinder has a small quantity of beads or other material inside – the size of the material varies with each pair so that when they are shaken, a different sound comes from each one in a set. Each cylinder in one set makes a sound identical to one made in the other set.

Prerequisite Touch tablets, early sensorial work

Presentation Pre-arrange the red: loudest, softest, middle, randomly place the others
Pre-arrange the blue: any order, but the loudest is not first.

1. Invite an individual child. Show where the materials are kept and how to carry them. "The contents rattle a little bit." Invite the child to bring one box and the adult brings the second box to the table.
2. Remove the red cylinders and place them in a column.
3. Pick up the first one (loudest) and show how to shake the cylinder:
Hold elbow up and out a bit. Hold the cylinder with the pads of the fingers and move the wrist up and down to shake the cylinder near one ear. Place the cylinder on the table and switch hands to shake near the other ear in similar manner. Replace in original order.
4. Invite the child to repeat.
5. Listen to each cylinder, inviting the child to listen as well.
6. Remove the blue cylinders and line up next to the red ones. "These ones sound the same, even though they have a different color. We'll match them in pairs of one red and one blue."
7. Use usual matching pattern to match the cylinders.
8. Check completed pairs for accuracy.
9. Invite the child to repeat.

NOTE: Stay with the child through the duration of his first time with the material to assure he understands about matching one red with one blue.



Exercise 1 Grading
Using one set of the cylinders, show the child how to grade the cylinders from loudest to softest (or reverse) placing the first graded cylinder to the far left and placing the remaining cylinders horizontally to the right of the first cylinder. The child can then grade the other set or mix-up the currently graded ones.
Alternative: the child can check by matching if he has graded the second set.

Language Lesson 🌐 Language is given in the form of a three period lesson.

Memory Games Distance Matching

Invite 2-3 children for a game with the sound cylinders. Set up one set of cylinders on a tray to take to a distant location in the room and the other set to remain on the table. Invite the children to listen to one of the cylinders and find its match from the tray, bringing the cylinder back to confirm accuracy. If it is not a match, return the cylinder and try again. If it is a match, set it with its match set to one side.
Note: Can be played closed or open ended.

Distance Grading:

Invite 2-3 children. Use one set of cylinders. Listen to pick out the loudest or the softest and place it on the table, removing the others to a tray taken to a distant location. Invite the children to continue grading the cylinders, always looking for the next in the series. Take incorrect ones back and only bring one at a time.

Language Game: Comparative

Invite 2 children to place all the cylinders from one set on a tray taken to another location in the environment, holding back a cylinder from the middle of the series. Ask the children to listen to the cylinder and bring another that is louder (or softer). If the children are correct, they take back the first cylinder and are asked to bring another of appropriate loudness or softness; if incorrect take back the incorrect one and try again. Assure that all children have a turn.

Language Game: Comparative/Refinement

Play as above but ask for the cylinder that is just louder or just softer.

Rattlesnake Game:

A large group of children gathers in a close circle. Two children are chosen to go into the middle, each with a rattle and blindfolded. One child is the rattlesnake and shakes the rattle; the other child must respond by shaking his own rattle but the circle of children moves the second child around to keep him from the rattlesnake, while the first child is trying to find and touch him.

Bell Game:

Gather 4-8 bells made of various materials on a tray. Invite a collective or a small group of children. Ring each bell naming the material it is made from. Invite the children to close their eyes; ring one bell and ask the children to raise their hands if they know the material, keeping their eyes closed. If the no one names the correct material, tell them and come back to it later.

Control of Error	Perceptual: in the child's auditory sense
Direct Aim(s)	Auditory discrimination of volume
Indirect Aim(s)	Preparation for writing in the flexible wrist movement
Age	3-5
Language	positive, comparative and superlative of loud and soft
Endnote(s)	This activity can aid in the detection of hearing difficulties.

Introduction to the Bells

Music is a universal language. Through it, man has been able to communicate with one another the shared human story in all its emotion, practicality, passion and spirituality. "The best for the youngest" is a theme throughout the Montessori Method and the material of the bell cabinet is no exception. We do not provide cheaply made plastic xylophones and other tinny music, but a series of perfectly pitched bells along with a variety of other real musical instruments. The bells provide the children with a sensorial experience at the youngest possible age of true pitch, attuning their ears to not just volume (as in the sound cylinders) but to the various pitches they hear around them every day. While children will not necessarily sing on-pitch, nor are the adults expected to, the exposure to the beautiful sound of a soft bell, produced first by a gentle touch of the mallet and ceased by a gentle touch of the damper, provide a beautiful sensorial experience with music like no other.

Twelve pages of information and album page.

Sensorial Aspects of the World

Introduction to *Sensorial Aspects of the World*

The materials for exploring the sensorial aspects of the world provide keys to the child for further exploration of his world: shape, basic landforms, cultural adaptations in relation to the climates, and some of the basic names of places and oceans. While they appear to be geography materials, and can be thus used in other and later environments these materials do not teach geography per say, but serve as a preparation for geography in later years as well as develops within the child a sense of order and his place within the greater context of the human race.

Dr. Montessori at first believed that children aged three to six could not handle this type of information yet she began to develop the cultural activities in 1937 and observed the children closely. The children gravitated toward them. The material serves a different purpose than similar materials in other schools: in the casa, these materials are a means towards development: a child requires orientation to his world to establish a sense of order and to make the choice to further explore the physical and cultural aspects in the world around him. In other schools, these materials are an end in themselves, for specific memorization purposes, with little to no experiential reference for the child. While other schools are improving in this area, Montessori prepared environments allow the child to make more and stronger connections between his personal exploration and the greater world around him.

Children in the casa are not learning facts to be tested, but are exploring the materials, exploring the world. The child absorbs his culture spontaneously. As the exercises of practical life are based on the child's culture, the materials for sensorial exploration of the world provide the keys to further exploration of the child's own culture as well as other cultures.

In the second plane, culture is explored in a different manner. In the first plane, we give the child the world, but in the second plane, he needs the universe. The child's mind turns to the universal: he has a reasoning mind, is socially aware, imaginative, interested in other societies, develops micro-societies, is focused on morality and delves into cosmic education. Experiences in both planes should support the human tendencies and be pointed towards the fact that humans have a responsibility for the betterment of life.

Shared with the other cultural activities interspersed throughout the casa, the material for sensorial aspects of the world has two key aspects: ***we always begin with the whole, moving from very general to very specific***. This movement should allow the child to see how the parts are connected to the whole and will help the child later in grasping the interconnectedness of

all creation in cosmic education. We begin with the globe and work to child's country, becoming more specific as pertinent. Secondly, we keep the cultural activities fresh and alive, since culture is ever-developing. All maps and globes, as well as any photographs and artifacts are kept up-to-date so that the child always has the most current impression of the world.

Our goal is to help the child develop his personality and adapt to his particular time and place so that he can function independently as a cooperative member of society. In the broadest sense, culture is a part of all areas in our lives, essential, therefore cultural activities cannot be divided into their own area and explored in isolation from life, but are interspersed throughout every area in the casa: mathematics (all humans have a mathematical mind), language (zoology, botany, geographical names, etc.), sensorial (sensorial aspects), exercises of practical life (introduction to the child's own as well as other cultures' tools and aesthetics). The environment should encourage exploration and inquisitiveness through the extra materials placed in the room such as artwork, decorations, photos, maps, plants, flowers, animals, and artifacts.

The world is much more connected in the twenty-first century than it has been since time began. The concept of global thinking is a reality, if quite abstract. Prepared adults consider a child's needs, through the mneme, sensitive periods, movement and senses, to provide keys to a global and universal perspective.

Climatic Zones

Materials Globe on which the climatic zones are painted in three colors:
Torrid zone (red); Temperate zone (green); Frigid zone (blue-ish white - icy)
Continents are outlines in black; the equator is marked with a dotted black line.
Five flat world maps showing the climatic zones in the following ways:

- Map with only the Torrid zone colored red
- Map with only the Temperate zone colored green
- Map with only the Frigid zone colored blue
- Map with all three zones colored in the three colors
- Control map with all three zones colored in the three colors and all the pictures pasted in the proper places

Maps could be printed on very large paper and mounted on poster-board.
box containing colored packets representing each zone: in each packet are small pictures of characteristic plants, animals, dwellings, people, and clothing of one of the climatic zones. Each picture has a dot on the back according to the climatic zone to which it belongs, serving as a control of error. Each packet is color coded to the map to which it belongs.

Working mat

Prerequisite cultural folders and biome folders


Presentation *Torrid Zone*

1. Invite one to three children for a presentation.
2. Ask a child to set up a working mat.
3. Show where the materials are kept.
4. Point out the globe, the Torrid Zone map and the corresponding box of packets.
Show how to carry each one, one at a time and with two hands.
5. With the children bring the materials to the mat.
6. Point to the red zone on the globe. "This part of the world gets very hot."
7. Introduce the box containing the climatic packets and ask the child to remove the red packets.
8. Have a discussion with the children about the pictures – why certain plants and animals can survive in this part of the world, the types of shelter and clothing for this part of the world, the people who live there and so on.
9. Invite the child to place the Torrid Zone pictures on the red portion of the flat map.
10. Invite the children to continue working with the Torrid Zone map and pictures.

Temperate and Frigid Zones:

Introduce these zones separately and in the same manner.

Extension Once each of the zones has been introduced separately, mix all the pictures up and ask the children to sort them by examining each and placing it in its appropriate spot on the map that is colored to indicate all three zones.

Language Lesson  Language is given within the presentation.

Control of Error the adult; the color coding

Direct Aim(s) To show different ways in which humans have adapted to and taken care of their needs in different climatic conditions.

Indirect Aim(s) preparation for geography

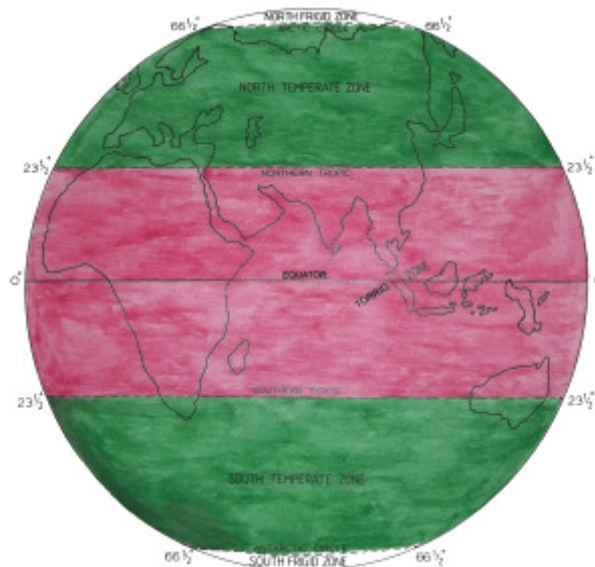
Age 3-4

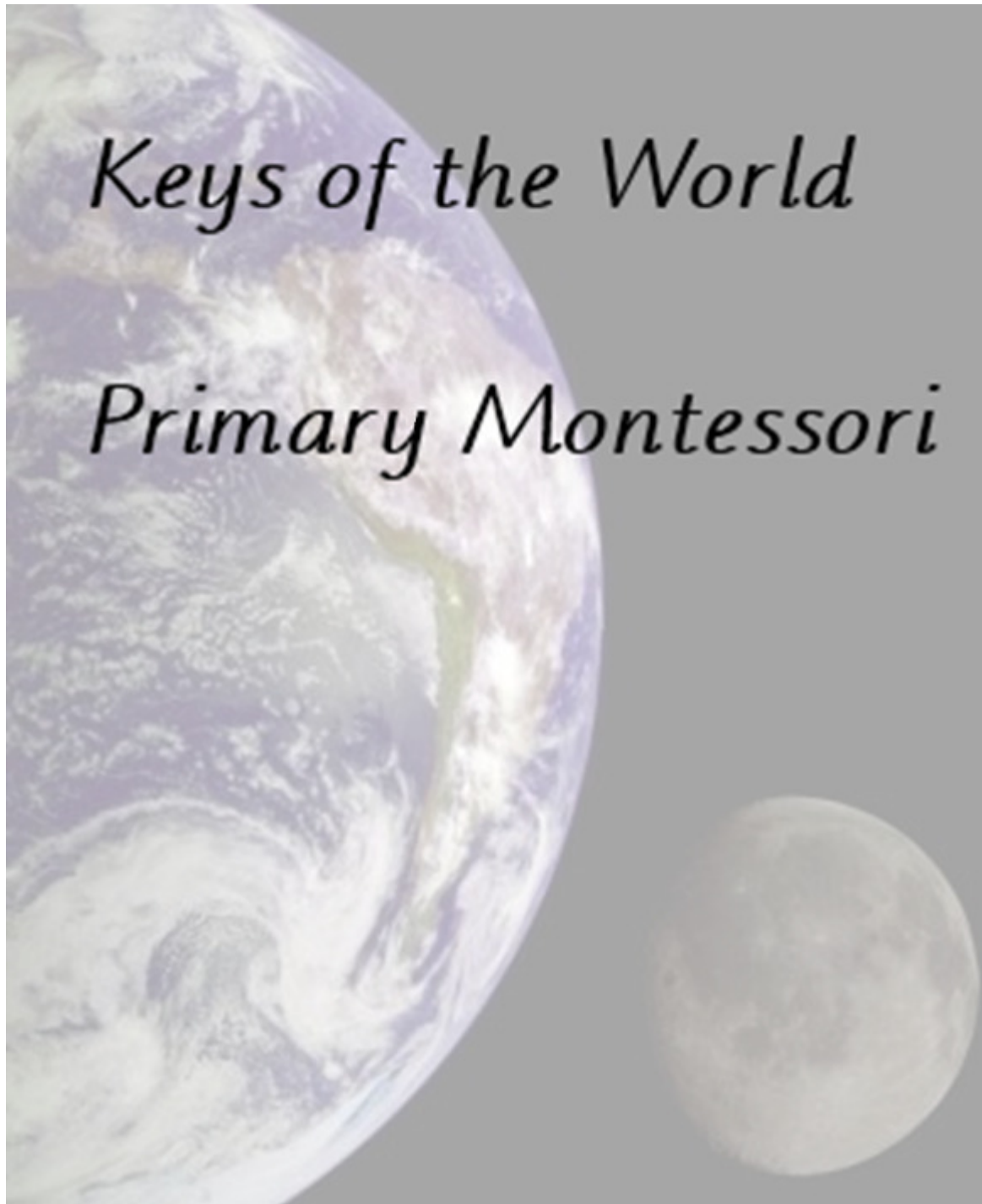
Language torrid, temperate, frigid, zone

Endnote(s) Climatic Zones

Torrid Zone	The central latitude zone of the earth, between the Tropic of Cancer and the Tropic of Capricorn, characterized by a hot climate.
Temperate Zone	Either of the two intermediate latitude cones of the earth (the North Temperate Zone between the Arctic Circle - the Tropic of Cancer and the South Temperate Zone between the Antarctic Circle and the Tropic of Capricorn) characterized by a mild climate.
Frigid Zone	Either of the two extreme latitude zones of the earth (the Northern Frigid Zone between the North Pole and the Arctic Circle - the Southern Frigid Zone, between the South Pole and the Antarctic Circle) characterized by a cold climate.

Paint your globe similar to this:
Try to use thin layers of paint to show the continents





Keys of the World

Primary Montessori

Mathematics Album

Keys of the World

Primary Montessori

Ages 3-6 years

Mathematics Album

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Keys of the World

"We are convinced that the child can do a great deal for us, more than we can do for him. We adults are rigid. We remain in one place. But the child is all motion. He moves hither and thither to raise us far above the earth. Once I felt this impression very strongly, more deeply than ever before and I took almost a vow to become a follower of the child as my teacher. Then I saw before me the figure of the child, as those close to me now see and understand him. We do not see him as almost everyone else does, as a helpless little creature lying with folded arms and outstretched body, in his weakness. We see the figure of the child who stands before us with his arms held open, beckoning humanity to follow."

*~Dr. Maria Montessori
Education and Peace*

Primary Mathematics

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Prologue

Montessori education seeks to fulfill a child's needs at every age of life. Indeed, Montessori is a way of life – a way of observing what is already present and bringing about a beautiful fruition of each person's greatest potential.

In your hands you are holding a particular set of keys to the world. Montessori saw that children have particular needs and are particularly ready to receive certain experiences at particular ages. This mathematics album is not meant to teach mathematics as much as it is to provide at the right ages sensorial experiences for the basis of our language of mathematics that is innate to all human beings. Indeed, all humans are born with a mathematical mind – a mind that seeks to find corresponding matches (one to one correspondence), to organize itself by finding patterns in the world around him and to quantify those patterns in a particular way.

The keys we provide the child at this age, before age 6, are keys to the world because with these keys the children has the foundation for personal exploration of the world around him. It is not necessary for the adult to have every answer, it is only necessary to know how to use the tools before us and to guide the child's use of these tools towards their own construction and inner organization.

To gain the most from this mathematics album, you will want a strong foundation in the primary level theory, through the reading and use of the primary level Montessori theory album.

I also highly suggest you read this album in its entirety before beginning, so that you can know where things are going to go and you can have an idea of where your child might be ready to go next after any particular presentation. For the most part the album is rather straight-forward, as compared to other Montessori albums, however there are a few areas of overlap, where a chosen path of the next step is a choice made based on the child's interests and abilities, rather than "the next thing on the list". You will find the scope and sequence at the end of the album of assistance as a *guide* only in determining general appropriate age ranges.

It has been a joy to put together these albums for you. Each Keys of the World album is compiled from AMI (Association Montessori Internationale) training, with adaptations for style, formatting, proper footnotes, readability, and wider variety of use, including homeschool. I am more than happy to assist you in your understanding and experience of primary or elementary Montessori.

Enjoy!

Education as an Aid to Life

Education as aid to life is an attitude, not just a technique, system or method. It is a spiritual attitude towards all humankind. We start with the present child to study humanity, our past and our future. All humanity has one thing in common – particular tendencies towards exploration, communication, progress and creation. Education as an aid to life allows us to study the true human nature through careful observation. We educate so that we, and all life, might live life in the way that God intended.

We don't fill children up – rather they reveal themselves to us and we provide the appropriate environment for their true needs. The 'jewel' of true humanity is there within them, planted by God at their conception, if we will only allow for the removal of and the prevention of the build-up of extraneous material. Baptized children especially have had Original Sin washed from their souls. Let's bring them up to live their baptismal command: live as children of the light (Ephesians). Children build themselves in particular stages when provided optimal environments. Children with love and security will develop fine regardless of their educational method, but providing a particularly prepared environment maximizes even these children's potential.

Education's aim is to raise the level of humanity. 'To educate' means "to lead out" – in particular referring to the potential of the child. The child has specific psychic powers of memory, cognition, the absorbent mind, the *horme*, *mneme* and others which he utilizes to build the adult he is becoming. Starting peace education with adults is too late – to build a truly peace-filled society, we must start with the children who are still constructing themselves – as they construct, peace will be built into themselves.

The child's potentiality is not just cognitive, but spiritual, peaceful, emotional and physical – and is also seen in the development of his character.

The secret to education is that we have a lot to learn *from* children. We need to see the child as someone to learn from and with, not just an empty vessel to be filled up with knowledge. When we create the best environment for the child to flourish, he will reveal himself to us as a precious creation gifted to us by God. All adults must help – not just parents and teachers but every adult who comes in contact with children.

*This is our cosmic task – to work towards this social revolution –
to sow seeds broadly throughout the world.*

Introduction to Mathematics

Definition

Branches of Mathematics

History of Mathematics

Mathematics in the Montessori Environment

Two Main Difficulties

Montessori Mathematics Materials

"The more we allow the children to follow the interests which have claimed their fixed attention, the greater will be the value of the results."²² The mathematics area follows a pattern of concrete, symbolic representation, then association with one another. It is expected that the child will be given opportunity to thoroughly explore what he has already been presented before moving on, while also keeping his interest in further material in mind – as interest opens the mind to absorb more and deeper knowledge. An abstraction can't really be taught – it is more of an inner illumination of understanding, hence it is important to take one step at a time.

Numbers 1-10:

Number Rods	Concept of quantity and association of the number name with the rod.
Sandpaper Cyphers	Association of names of number with their corresponding symbols.
Number Rods and Cards	Association of concrete quantities with their symbolic representation.
Spindle Boxes	Quantity is made up of units; zero; sequence of numbers.
Zero Activity	Further clarification of the number zero.
Cards and Counters	Pattern of odd and even.
Memory Game of Numbers	Consolidation experience of numbers 1-10.

Decimal System:

Introduction to the Golden Bead Material	Introduction to the categories of the decimal system.
Intro to the Decimal Card Material	Symbolic representation of the categories.

²² Maria Montessori. *The Montessori Elementary Material*. Part III, Chapter 1.

Formation of Numbers	Traditional names of the numbers; reinforce zero as a placeholder
Change Game	10 of one category must be exchange for 1 of the next higher.
Addition - Golden Bead Material	Concept of putting two or more unequal quantities together.
Subtraction - Golden Bead Material	Concept of taking a quantity away from a larger one.
Multiplication - Golden Bead Material	Concept of adding two or more equal quantities.
Division - Golden Bead Material	Concept of sharing out a large quantity evenly among members.
Long Division with Bows	The answer is found in what one unit receives in the sharing out (not necessary to spread out to everyone to find the answer). Quantities of categories are represented in stamps of the same size (later in written numbers of the 'same size').
Stamp Game – Introduction and Addition; Subtraction; Multiplication; Division	All: traditional operational signs All: Concentrate on categorical values involved and see that these quantities are always from 0-9.
Dot Game	Recognizing categories in the column of addends in the right hand column.
Word Problems	Application of math knowledge to real-life situations.

Counting:

Teens Stage I: Beads 11-19	Colored Bead Stairs; quantities 11-19 as separate entities
Teens Stage II: Boards 11-19	Associate the name with the numeral.
Teens Stage III: Beads & Boards 11-19	Associate the symbol with the quantity.
Tens Stage I: Beads 10-90	Traditional names 20-90
Tens Stage II: Beads & Boards 10-90	Associate the names with the symbols

Tens Stage III: Beads & Boards 11-99
Linear Counting Stage I: Hundred Chain
Linear Counting Stage II: Thousand Chain
Skip Counting

Traditional names for 21-99

Counting by tens

Counting by tens and hundreds

Counting by numbers other than 1, 10, 100;
preparation for multiplication tables

Memorization:

Addition Snake Game

Addition Strip Board

Addition Charts

Subtraction Snake Game

Subtraction Strip Board

Subtraction Charts

Multiplication with Bead Bars

Multiplication Board

Multiplication Charts

Unit Division Board

Division Charts

Counting by numbers other than 1, 10, 100;
basic additions.

Commutative law.

Repetition and memory development with
basic addition facts.

Concentrate on basic subtractions.

Concentrate on basic subtractions;
development of memory.

Repetition and memory development with
basic subtraction facts.

Multiplication in its geometrical form.

Concentrate on basic multiplications in
succession.

Development of memory skills.

Concentrate on basic division facts; see that
not every number is equally divisible;
relationship between multiplication and
division.

Development of memory skills.

Passage to Abstraction:

Small Bead Frame

Wooden Hierarchical Material

Large Bead Frame

Division with Racks and Tubes

Consolidation of place value and the function
of the decimal system; apply previous
knowledge and prepare for abstraction.

Give the idea of the entire decimal system.
Apply previous knowledge and prepare for
abstraction.

Introduction to short division; reinforce
knowledge and understanding of division.

Fractions:

Introduction to Fractions

Operations with Fractions

Experience with fractions and terminology;
idea of equivalency through exploration.
Sensorial impression of the four operations.

The Mathematical Mind

If we support the mathematical mind that each child possesses, both directly and indirectly, the world of mathematics comes alive for children in the environment. There is no fear or drudgery associated with it, as they learn concepts with ease at their own pace. Indirect preparation while the child is a fully sensorial explorer enables him to move readily and gracefully from concrete to abstract concepts. These materials are loved by the children and open the door for all future work in math with a solid foundation.

"Beyond the active method, in which the movement of the hand, which moves objects about, is always operating, and in which the senses are so energetically employed, one must think of the special attitudes of the child's mind toward mathematics. Because the children, leaving the material, very easily come to love writing out the operation thus doing abstract mental work and acquiring a kind of natural and spontaneous leaning towards mental calculations."²³

Resources to have on hand:

Barron's Mathematical Study Dictionary

²³ Maria Montessori. *The Discovery of the Child*. p.313.

Numbers

1-10

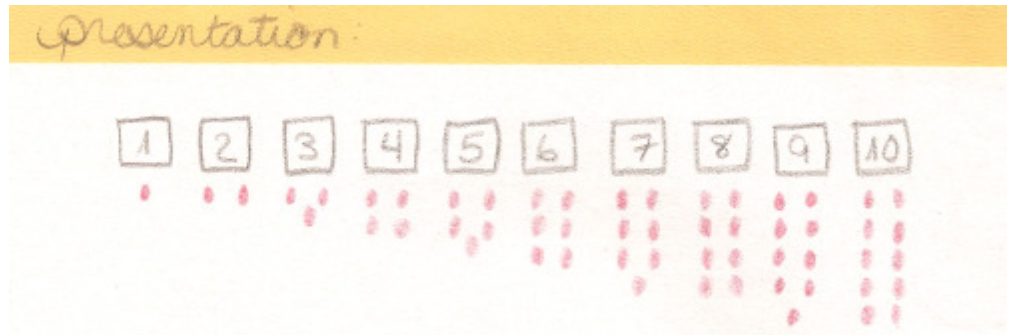
Cards and Counters

Materials

In box or basket, ten small cards with the numbers 1 to 10 printed on them; 55 identical objects (counters, shells, glass beads, etc.).

Prerequisite

Spindle boxes and Zero Activity

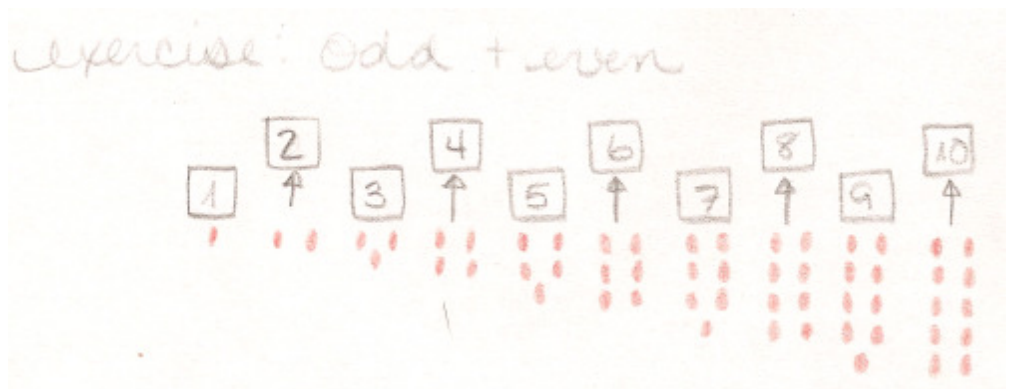


Presentation

1. Invite an individual child to a table. Take out the cards randomly.
2. "What number comes first?" Place the number 1 at the top of the table to the far left. "Next?" Find the 2 and place it 2-3 cm to the right of 1.
3. Continue through 10.
4. "I'll show you how to put the counters in a special pattern."
5. Place 1 counter about 2 cm below the 1.
6. Place 2 counters about 2 cm below the 2, in a horizontal line about 1.5 cm apart – in line with the counter under the #1 but clearly in their own columns.
7. For #3, repeat the pattern for two, adding the third counter, centered below the first two counters.
8. Repeat with similar pattern, always placing the odd one centered below the number and the columns of even counters above it.
9. Let the child take over after 5, if he is interested.
10. Invite the child to do the work again.

Exercise 1: Odd and even

1. Invite the child to set up the counters in the usual pattern.
2. Saying no words: Beginning with #1, place the pointer finger below the square and slide it down until it bumps the counter. Stop.



3. Repeat with 2, coming all the way to the edge of the table.
4. Continue through ten. Pause.
5. Start with finger at the edge of the table and slide up to the counter/cards. When reaching the first counter, say "Odd." When reaching a card, slide it up a couple of centimeters and say, "Even."
6. Continue through ten, with the result that all even numbers are in a new row.
7. "Some numbers we call even – let's count them together."
8. Others we call odd – let's count these ones together."

Control of Error

- ⊕ In the exact number of the material.
- ⊕ In the child arranging the cards by the child's knowledge of the numerical order.

Direct Aim(s)

To reinforce the knowledge that each number is made up of separate quantities. To help the child confirm he knows the sequence of numbers and how many separate units form each number. For the exercise: to introduce the concept of odd and even numbers in a sensorial manner for the child to understand the concept and recognize the pattern of odd and even.

Indirect Aim(s)

To prepare for the divisibility of numbers by 2. To prepare the child for skip counting.

Age: 4-4.5

Language

odd, even, counters

New Information

pattern of odd and even

Endnote(s)

This activity is similar to the third period of a three period lesson. The rods and cards presentation is the first period; the spindle box is the second. This activity confirms and reviews the child's knowledge, while introducing the concept of odd and even.

Decimal System

Introduction to the Decimal System

By working with the numbers one through 10, the child has mastered the concept of quantity, the names of the symbols representing 0-10; he can associate the quantity with its symbol and begin to understand the concept of zero. Children indirectly gain information about the four operations, sequencing and the concept of odd and even. They understand that quantity is made up of individual units.

Generally, we complete Numbers 1-10 and move directly to working with the decimal system rather than working with teens and tens, but some children require the alternate route first. Most children like to work with large quantities with the beads. We also prefer to move to the decimal system due to the child's absorbent mind, his sensitive periods for order, language and refinement of the senses – we can introduce the bead material on the purely sensorial level as the child can see the relative difference in bulk. This material also supports the mathematical mind.

The first material presented is given in the form of a three period lesson: the golden bead presentation tray which holds one representative of each category (1 unit bead, 1 ten-bar, 1 hundred-square, 1 thousand-cube). Glass beads are strongly preferred for the full sensorial impression.²⁴ The child is able to see that the 1000 is much larger than the unit. At the elementary level, he will look at the same material with a geometric perspective (dot, line, space).

With only the ability to count (knowledge of) the numbers 0 and 1-10, the child only needs to learn two names in the initial presentation with the golden beads: hundred and thousand. With this new information, he can work up to one million (the next new name): the beads are bound together and can be counted in the same way as 1-10 of its components (i.e. 1-9 tens, then 10 tens which equals 1 hundred, and so on). The child is never required to count beyond 10 as adding 1 to 9 of one category, creates 1 of the next category. With this material, the child counts with real understanding and meaning.

Sometimes the child forgets the names of the new categories (hundred and thousand), so we play several fetching games to reinforce this knowledge.

We offer the teens and the tens boards a little later because with this material the child is just memorizing the traditional names of the numbers – in the decimal bead stage, the child counts by category (1 ten, 2 ten, etc.).

²⁴ Fused beads as well as light-weight plastic are entirely unacceptable for true work with the children as they do not give the correct impression in both appearance and weight, not to mention the lack of aesthetic quality.

After introducing the beads, we follow the same pattern as in our previous mathematics work: beads, then cards (a symbolic representation), then the two in combination. With the beads number cards, green represents units, blue represents hundreds, red represents hundred and green represents thousands.

With the change game, the child learns how to exchange 10 of one category for one of the next. This work indirectly prepares the child for the four operations and its usually required borrowing and changing. After presenting the four operations with the golden beads, we'll reinforce the work with the stamp game, dot game and the word problems.

We want to keep the following things in mind when we work with the decimal system:

- ◆ Hierarchies and categories: 3 categories (unit, ten, hundred) repeat in each hierarchy (simple hierarchy, thousands, millions, etc.).
- ◆ Do not move on to the operations before the child fully understands the categories, even if you're getting tired of it.
- ◆ The child may confuse hundreds and thousands – it is useful to count the zeroes.
- ◆ When we say a whole number out loud, we don't use the word "and" which is used only in speaking of fractions.
- ◆ Do not rush into the stamp game as it's really important for the child to understand the nature of the four operations first.

With the golden bead material, we are giving sensorial impressions of all four operations. Unfortunately, the golden bead can be largely underused, yet they are that which gives understanding to the stamp game.

Definitions of the four operations:

Addition: When we take unequal quantities and merge them together, we get a larger quantity.

Multiplication: Merging equal quantities.

Subtraction: Splitting unequal quantities.

Division: Splitting equal quantities.

The decimal activities are called small group or collective activities because the children are older and generally prefer working in companionship with their friends as well as the possibility of each child having sets of beads to contribute or be shared out to, etc. The stamp game is individual and gains repetition on a different level, providing the child an equal opportunity to

consolidate new knowledge in both group and individual formats. The first time the child writes out the operations in full is in the dot game, which is also an individual exercise.

These materials serve as a mental gymnasium in which we must ensure sufficient repetition before allowing the child to move on to the next stage.

Formation of Numbers

Materials

The bead formation tray of golden bead material (9 unit beads, 9 ten-bars, 9 hundred-squares, 1 thousand-cube); the decimal cards coordinating to the golden bead material; one decimal or working mat for the cards; two working mats for the beads and for working; one empty tray with a unit bowl

Prerequisite

Familiarity with the golden beads and the decimal cards

Presentation

1. Invite an individual child, showing him the materials on the shelf.
2. Set up two mats vertically with a 3rd mat horizontal.
3. Show the formation of numbers bead tray. Bring it to the first mat.
4. Bring the formation of numbers decimal cards, bringing it to the second mat.
5. Lay out the material on its respective mat in a corresponding manner: units in a vertical column to the right, with each successive category to the left of the last:
6. The child should take over after 5 – when reaching 9, ask, “what comes next?” (10) Place the tens vertically.
7. Ask the child at each category change, “what comes next?”
8. Say, “We have just one thousand.”
9. Repeat with the card material, leaving a slight space around each card.

Stage 1: Adult gives a card and the child brings the beads

1. Choosing just one category (so just one card), ask the child to bring its corresponding beads.
2. When the child returns, remove the beads from the tray and verify, placing the card above the beads.

Stage 2: The adult gives the beads and the child brings the cards

1. Same as above but in reverse manner.

Stage 3: Formation of Numbers

2. The adult gives and the child brings from two categories of beads.
3. Another day: Repeat with three categories.

4. Another day: Use all 4 categories.
5. Another day: Use 3 categories with 'o' as a place holder.
6. Magic slide: Align cards to the left. Hold up vertically with the right side on the mat; slide the cards down. Read the number using traditional names. (if the child asks about the name, we can say it's another name for that number of tens)

Stage 4:

1. Give the number orally and the child gets the bead and cards, asking the child what number he will bring to verify the amount.

Control of Error: In the adult and in the counting

Direct Aim(s)

To reemphasize the meaning of numbers. To help the child become familiar with the names of the different categories and to acquaint himself with the relative differences in size and shape among the categories. To help the child handle large quantities within the decimal system. To give the child the words for large numbers.


Indirect Aim(s)

To help the child realize and become aware that while the significant digits are from 1-9, it is their place within the numeral that provides its value. To help the child realize and become aware that in a number containing two or more digits, zero holds an empty place showing that there is no amount in that category. To help the child become conscious of the static laws that determine the organization of numbers in the decimal system: Each category consists of 9 objects (numbers); each hierarchy is made up of three categories (units, tens, hundreds); the ratio between each category and the next larger category is 1:10; the ratio between the unit of one hierarchy and the unit of the next larger hierarchy is 1:1000; the categories repeat in sequence through an unlimited number of hierarchies.

Age

About 4.5, after the golden beads and the decimal cards

Language: traditional naming of teens and tens; category, hierarchy, placeholder



1000

100

10

1

200

20

2

300

30

3

400

40

4

500

50

5

600

60

6

700

70

7

800

80

8

900

90

9

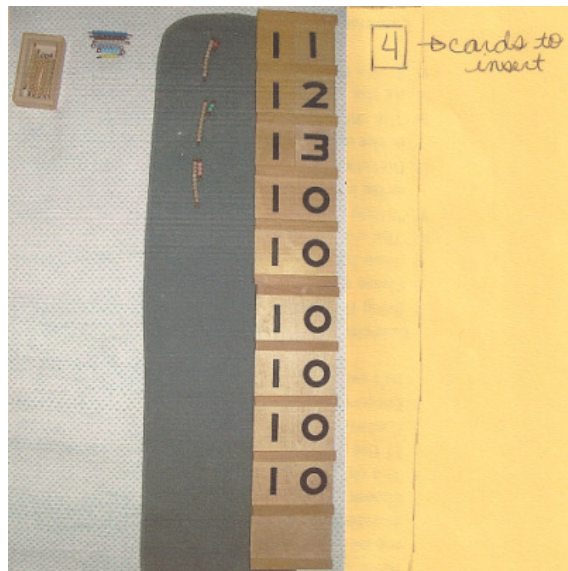
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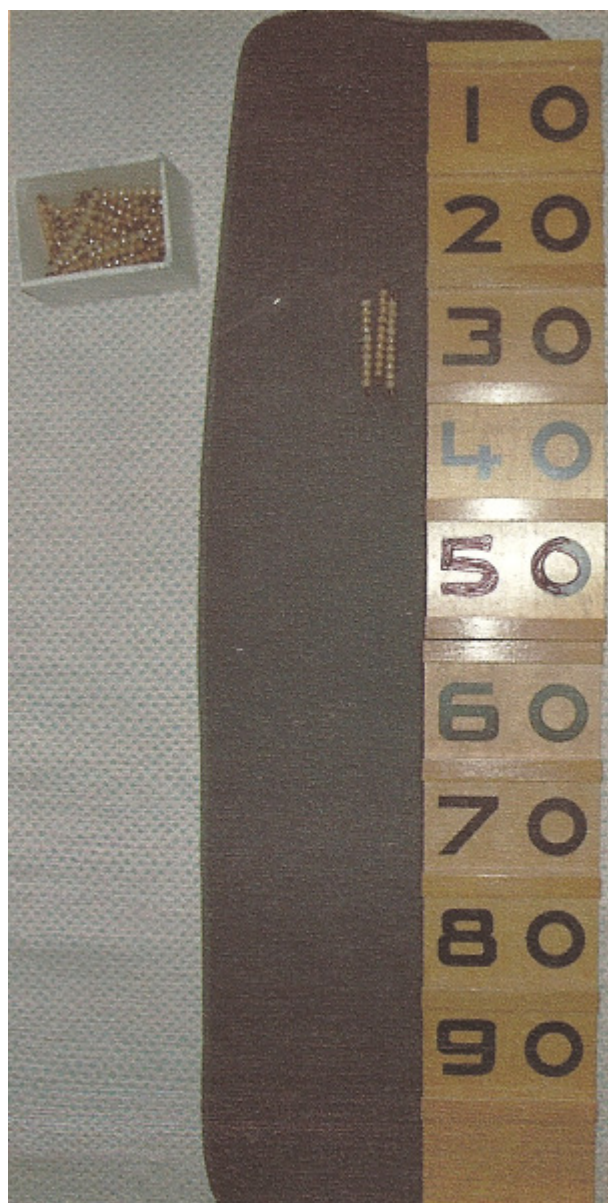
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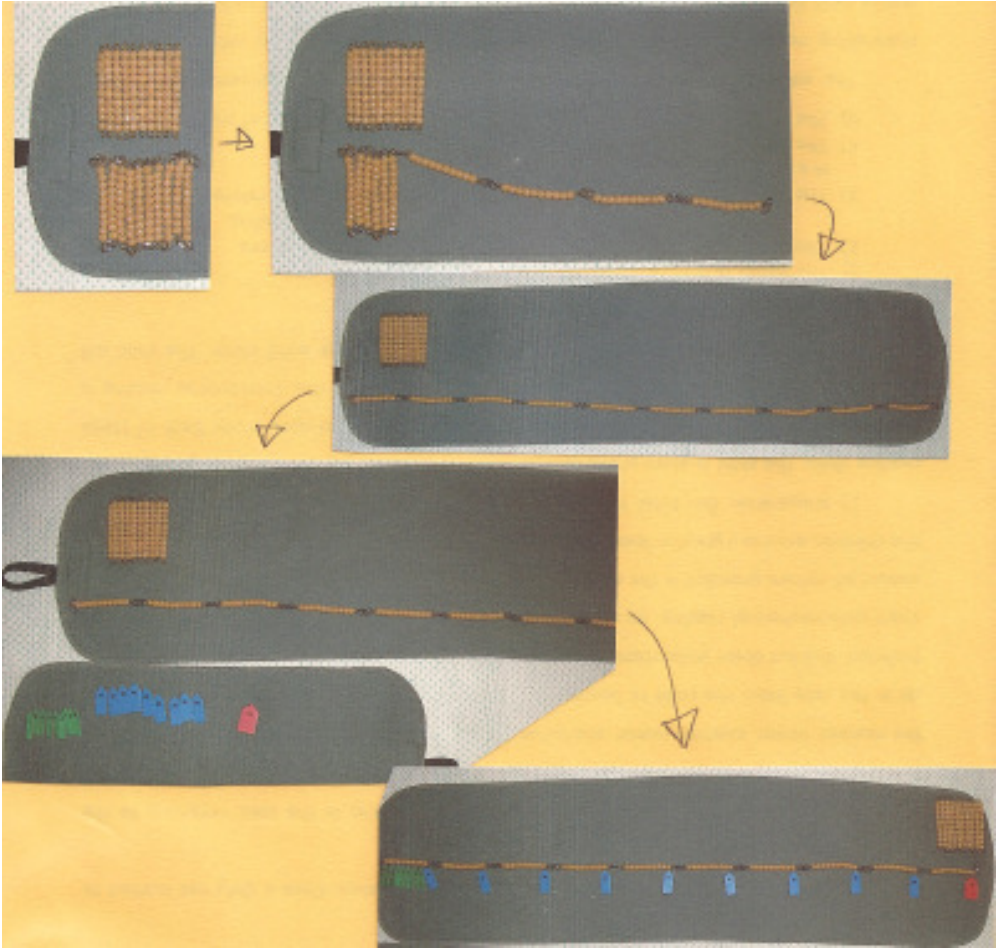
Linear Counting

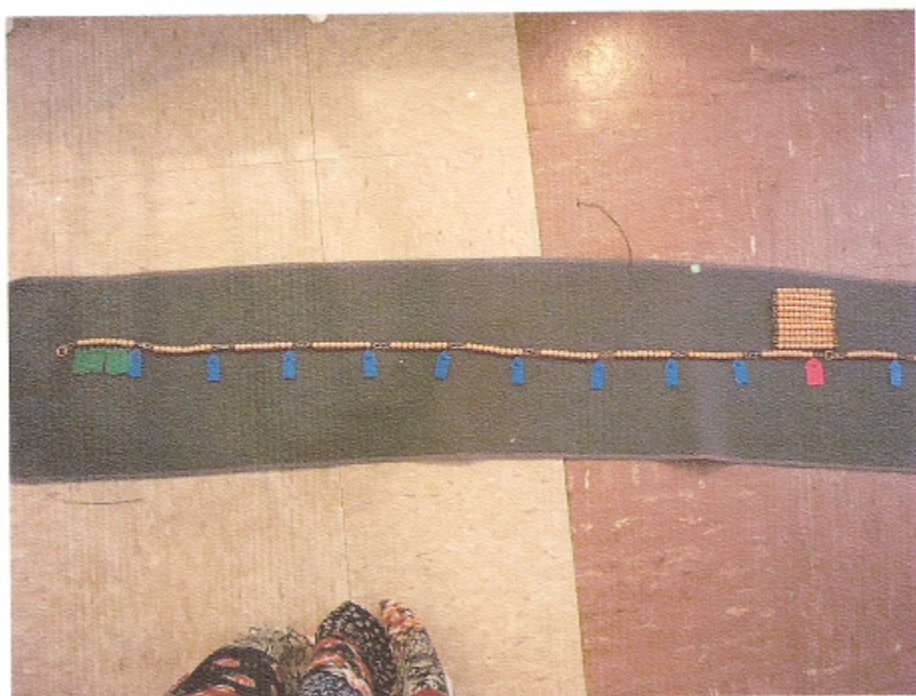
Notes on Teens/Tens:

The teens and tens boards are used for terminology purposes so that a child can count from 1 to 100 comfortably, then use the thousands chain to count beyond. There is a movement among some people to use the teens and tens boards to reinforce counting the way we do with the golden beads. This is an unnecessary adaptation. If you want to hold back on teaching the terminology of the numbers 11-100, simply SKIP this material. All is well!









Skip Counting

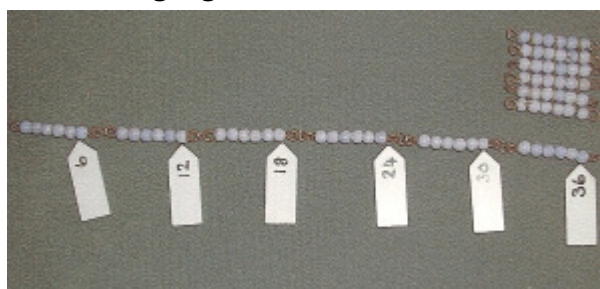
Materials

Cabinet of bead cubes, squares, and chains for numbers 1-10; each number has its own cube along with the number of squares needed to make the cube; each number has two sets of chains: short (square) laying stretched out and long (cube) hanging on hooks.

Prerequisite: Thousand chain

Presentation 1: Short Chain

1. Invite an individual child. Choose a chain (usually 5 for the first one).
2. Bring the small and medium mats. Bring the chain to the mat as well as that number's square and the small box of arrows.
3. Lay it out into a chain then fold into the square.
4. Superimpose the pre-made square then place it next to the chain.
5. Introduce the arrows and separate according to appropriate groupings.
6. Unfold the chain, count it, and touch each bead to place the corresponding arrow.
7. Place the square at the end of the chain.
8. Skip count, reading the numbers placed at the end of each bar (including the first) forward and backward.
9. Invite the child to work with other short chains in similar manner.



Presentation 2: Long Chain

1. Bring the long chain of a short chain already worked with, its squares, its cube and its arrows.
2. Fold the chain into its squares. Compare the squares by superimposing.
3. Place the pre-formed squares stacked on the side.
4. Introduce the arrows and arrange them on the mat.
5. Unfold the chain.
6. Touch the chain, counting each bead and placing the corresponding arrows.
7. Place a square each time a square has been counted, pointing out the wider arrows.
8. Place the cube at the end of the chain.
9. Stack the squares to show they are the same as the cube.
10. Count the numbers placed at the end of each bar, forward and backward.

Exercise 1: Comparing the chains – laying the chains and arrows

1. Lay out all the short chains alongside one another with arrows so their similarities and differences are displayed.

Exercise 2: Group Exercise with the short chains and squares

2. Invite 10 children and lay out 2-3 mats vertically.
3. Give each child a number 1-10 - ask them to get the short chain for that number.
4. Invite the children to arrange the chains from shortest to longest.
5. Ask each child to get the square for that number.
6. Ask each child to fold his chain into a square and place it next to the square.

Exercise 3: Group Exercise with the long chains and cubes

1. Same as above with the long chains.

Exercise 4: Group Exercise folding the chains into shapes

1. Invite 10 children. Invite them to gather a short chain and make it into a shape. They then locate something in the environment in that shape.

Control of Error: In the counting.

Direct Aim(s): To give the child further experience with linear counting. When reading arrows the child experiences skip counting which indirectly prepares for the tables of numbers.

Indirect Aim(s): Indirect preparation for multiplication

Age: 5+

New Information: Counting by numbers other than one, ten, thousand.

Endnote(s)

We show the child the concept of skip counting with chains other than 100 and 1000. The arrows are all the same color because this work is not within the decimal system. We are introducing other bases. These helps the child understand how we square and cube other numbers. We begin with the chain of five because the child only needs to remember 5 and 10 to get started.

Description of the chains 1-9 and their labeling arrows:

1 (red): three bead bars for 1, 1^2 (short), 1^3 (long)

An arrow marked "1" for the square and cube bead bars

2 (green) – Short chain: green labels marked 1, 2, 4

Long chain: green labels marked 1, 2, 4, 6, 8

3 (pink) – Short chain: pink labels marked 1, 2, 3, 6, 9

Long chain: pink labels marked 1, 2, 3, 6, 9, 12, 15, 18, 21, 24, 27

4 (yellow) – Short chain: yellow labels marked 1, 2, 3, 4, 8, 12, 16

Long chain: same plus 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64

5 (light blue) – Short chain: blue labels marked 1-5, 10, 15, 20, 25

Long chain: same plus 5s up to 125

6 (lavender) – Short chain: lavender labels marked 1-6, 12, 18, 24, 30, 36

Long chain: same plus 6s up to 216

7 (white) Short chain: white labels marked 1-7, 14, 21, 28, 35, 42, 49

Long chain: same plus 7s up to 343

8 (brown) Short chain: brown labels 1-8, 16, 24, 32, 40, 48, 56, 64

Long chain: same plus 8s up to 512

9 (dark blue) Short chain: blue labels 1-9, 18, 27, 36, 45, 54, 63, 72, 81

Long chain: same plus 9s up to 729

Memorization

Notes on Materials for This Section

- Boxes of problems:
 - Each operation: you may want a box that has all potential problems within each operation – then mix and match these for each album page.
 - OR you may prefer to have a dedicated set for each and every album page.
 - Let YOUR situation be the guide here
- Strip boards and control charts
 - Read through each album page, decide how you want to proceed with it; create or purchase just the items you will want to use. Yes, it is “ideal” to do them all, but if your situation dictates that a different layout is going to be easier, go for it! The important thing is keeping things straight-forward, working in baby steps for ever-increasing skills and keeping it essential.
- If you intend to move on to elementary with Montessori, purchase or make the contents for the negative snake game (found in the elementary Mathematics album) – from this material, you can pull just what you need for the snake games included here.

Multiplication with Bead Bars

Materials

Box divided into 10 compartments, each holding 57+ of each color of bead bars, 1-9 and the golden ten-bars; piece of gray felt bound in yellow (the mat can be placed on a working mat on the floor if a table is not large enough).

Prerequisite

Understanding the nature of multiplication (with beads and stamps)

Presentation

1. Invite an individual child to a table or a mat.
2. Bring the felt mat with the yellow trim and unroll it.
3. Invite the child to bring the box. Explain that the box is very heavy – we are careful when we carry it.
4. Discuss the action of multiplication.
5. "Let's look at the multiplication of 6."
6. Place a bar of 6 horizontally at the top left side of the mat.
7. Count the beads. "6 taken one time equals 6."
8. Vertically place a bar of six below the horizontal bar.
9. "What is 6 taken two times?" (place 2 bars of 6 horizontally, 1 beneath the other). Count each bead individually. "6 taken 2 times is 12."
10. Place a bar of 10 and a bar of 2 vertically below $6 \times 2 = 12$.
11. Continue through 6×10 , counting every bead and placing the product vertically.
12. The child can take over around 5 (move the box to his side).
13. Show him how to put away the beads in an orderly fashion.
14. Invite the child to repeat with another number.



Exercise 1: More than one or all the tables

1. Over a period of time, the child can do all the tables at once, borrowing other beads from other boxes as needed.

Exercise 2: Taking a number 10 times

(to show that recurrence of 0)

2. Invite one child and set up in the same manner, adding a pencil and paper.
3. "We'll take one bar ten times. We'll start with 2."
4. The child writes '2' on the paper.
5. Place the bar of 2 horizontally, ten times.
6. Count the bars as you place them.
7. Count the beads.
8. Read the equation aloud: "2 taken 10 times equals 20."
9. Write a '0' after '2'.
10. Invite the child to choose another number to take 10 times.
11. Set the bars, count the beads and write the product.
12. Read the equation aloud.
13. "What do you notice?" (we add a zero)
14. Continue with other bars.



Exercise 3: Combinations to make a product

This is an extension of addition and subtraction strip boards, showing the commutative law.

1. Invite an individual child and bring a pencil and paper with the box and mat.
2. "Let's see how many combinations we have that can make 12 as their product."
3. Place a bar of 10 and a bar of 2 vertically at the top of the mat.
4. Beginning with the bar of 1, place them horizontally below the product, counting until reaching 12. Read the equation aloud and write it down.
5. Repeat with 2-12, noting that some cannot be multiplied evenly and putting those ones back into the box. Write all the equations which work and read them aloud.
6. Turn the similar ones and place next to one another to show the commutative properties.

Control of Error

In the counting

Direct Aim(s)

To show multiplication in its geometric form: that a succession of lines creates a surface (therefore geometrical); to show that multiplication is never a quantity, but indicates the number of times to take a number.

Indirect Aim(s)

To prepare the child for square roots, factoring and the commutative law. To prepare the child for division by helping her realize that multiplication and division are reciprocal. The geometrical formation is an indirect preparation for exercises done later in geometry and algebra (in elementary).

Age: 5+

Passage to Abstraction

Small Bead Frame

Materials

Frame with a support to make it stand - four horizontal wires with ten beads on each wire, from top-down: green, red, blue (space), green – labels on the left of the frame marking each wire as 1, 10, 100 on white background, 1000 on gray background; prepared paper divided vertically in half, each half with vertical lines in green, red, blue and green – between the hundred and the thousand lines is a larger space and a column of commas – 28 horizontal lines.

Note: Be sure the beads on the frame are cleared to the left when not in use.

Prerequisite

All of the decimal work prior to this; at least through the subtraction snake game and the memory charts; understanding of categories, place value and exactly what the operations are and what they do.

MOST primary children should work at least a little bit with this material and the Wooden Hierarchical Material. The Large Bead Frame and Division with Racks and Tubes are appropriate for 5 1/2 to 6 1/2 or they can get it in elementary (best introduced in primary).

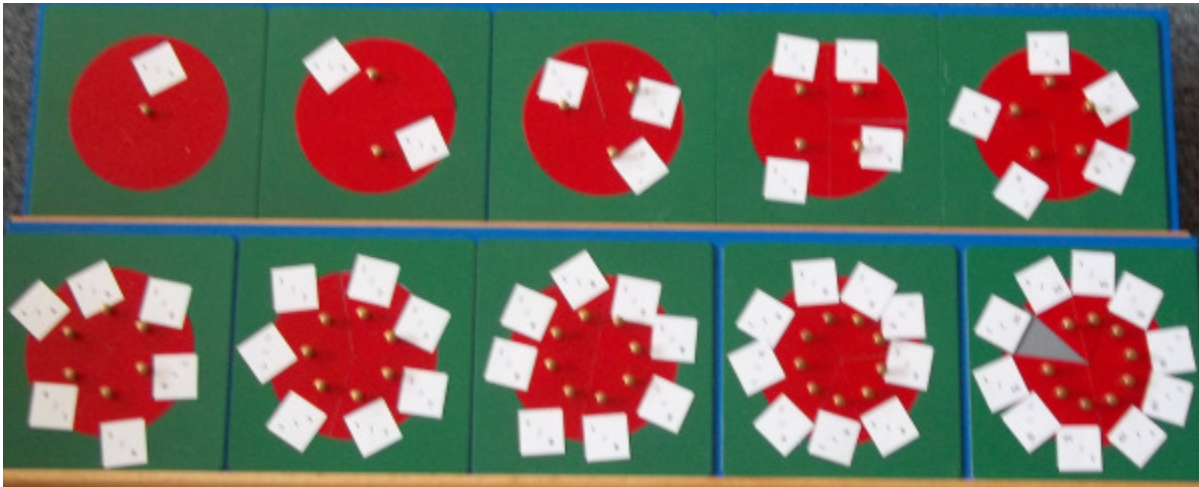
see back

Of Thousands	Simple	Of Thousands	Simple
Units	Hundreds	Units	Hundreds
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28

Of Thousands	Simple	Of Thousands	Simple
Units	Hundreds	Units	Hundreds
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
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22	22	22	22
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Fractions

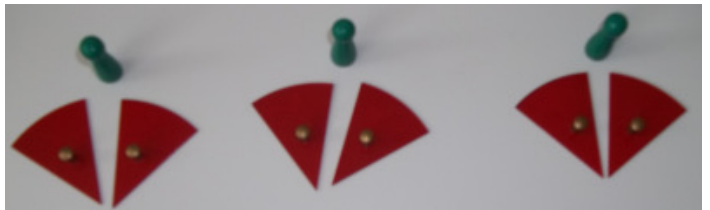
Introduction to Fractions



Operations with Fractions

Division

1. Set up in regular format, with the writing tray and the prepared labels.
2. Write a problem such as $6/8 \div 3 =$.
3. Ask the child, "What family do we need to complete this problem?" (eighth)
4. Invite the child to make the dividend in the middle, leaving room for the skittles.
5. "What is our divisor?" (three)
6. Take out that number of green skittles and place them at the top of the middle.
7. Divide the fraction pieces equally to the skittles and note the answer.
8. Write this answer on the paper. Invite the child to read it aloud.
9. Repeat with several more and introduce the prepared labels.



Control of Error: In the adult and the various control charts.

Direct Aim(s): To give the child the sensorial experience of the four operations with fractions.

Indirect Aim(s): To prepare the child for further work with fractions.

Age: 5.5-6