

Language Extensions Introduction

Maria Montessori did not leave a framework which will ultimately limit us. Though when giving Language extensions we must take into consideration the stage of development of the child we are working with.

We must always remember that this child, 3 to 6 years old, learns through the Absorbent Mind and the Sensitive Periods. The child's absorbent mind absorbs the entirety of the environment (simple and complex) and instructs himself in the process of self-creation. He forms himself physically, mentally and emotionally.

The child will only learn from his own activity and therefore the environment must contain materials for the senses which the child can manipulate and work repeatedly.

"The language extensions must be offered to the children to feed the Mind, the Hand and the Heart."

The child absorbs all the values, likes, dislikes, prejudices, ideas and ideals. He absorbs this into his personality. As guides we need to be aware of our own values, prejudices because unconsciously we are passing them to the children. By the age of six the child has absorbed all his culture, language, customs, music, art, values, every aspect of life and his people. By the age of nine the child has become a full member of his society.

The young child needs concrete experiences and sensorial activities and materials that they see and touch. The hands and the senses should be engaged in learning.

In each area we are offering to the child there is a specific sequence of activity, where we isolate the stimulus to give the child clarity. The child needs to absorb in a clear order. For example, Botany is given to organize the world of plants. Geography is given to organize the whole world.

We are giving the child "keys" to certain experiences and later he can explore the world around him.

The sensitive periods are considered when offering language extensions.

- Language: All the lessons are accompanied by Language. We give names of trees, flowers, animals, countries, oceans, composers, names of songs, names of musical instruments, name of artists etc.
- More language is given with poetry, conversation. There is oral language and written language.
- Refinement of the senses is present when we bring certain fabric or material from a certain country or region, when we bring food from other countries, when we include music, objects for the child to explore and manipulate. Fragrances.
- Order: we present our lessons from the general to the specific. (Except in History)
- Refinement of Movement: the presentation needs to be very precise for the child to absorb it and then be able to do it himself.

All the language extensions are integrated in the prepared environment. We must not offer an isolated subject matter. The language extensions are:

Geography, Botany, Zoology, Science, History, Art and Music.

Role of the adult:

- To support the psychological and physical development of the child in our changing world
- To help the children by introducing them to the natural environment as well as the social environment.
- To give the child incentives that will spark him into activity.
- To be the link between the child and the materials in order to help him in his development
- To guide and direct the child in his passionate desire to learn
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"We are sowing the seeds for the future"

Geography in the Children's House

From the Greek, Geo = earth; and graphos = description or study of...

Geography = study or description of the earth

It is the science of the earth and its life a description of land, sea, air, and the distribution of plant and animal life, including man and his industries. Ecological aspects are now extremely important as everything that man has done to the earth has greater consequences in the atmosphere and the universe.

We are all product of our particular geography. People reflect the spirit of the place both physically and spiritually. As humans we adapt to our surroundings.

People have made their home in deserts, in rainforests in all different regions. People have evolved their own culture. People have created their own life.

We want to convey admiration for a different way of life. The child will be able to respect the difference of other people. The child will develop respect for customs and lifestyles.

Geography is the heart and center of all cultural studies because it is through geography that the child is exposed to other areas of learning.

In Montessori education we offer geography to the child as an opportunity to come to a constructive and creative relationship with the whole universe or cosmos. "Geography is the study of man in space".

The geography material provides the children with the facts concerning the physical and political and the cultural worlds.

- Physical: land, water, mountains, climate, flora, fauna, clouds, etc
- Political: continents, countries, cities, etc.
- Cultural: clothing, food, music, art, protocol, etc.

In the Casa we provide the children with keys to unlock the unexplored.

The children need correct and factual information for further exploration. We must prepare the children for when they enter the second stage of development they are fully prepared to explore and receive explanations.

Purposes:

- To provide the child with activities which help him to order impressions and information
- To introduce the child to his place in the cosmos; this will ultimately end in a study of ecology.
- To help him become aware of the oneness of mankind
- To help the child appreciate the sameness of all mankind on the one hand, and on the other hand to the amazing scope of variations among people as a result of physical geography (climate, land and water forms, etc.) and the creative efforts and inventions of man.

Three educational principles to follow:

- 1) going from the known to the unknown
- 2) going from the concrete to the abstract
- 3) going from the whole to the parts

Simplicity and isolation are important for clarity of impressions. Careful analysis of difficulties in activities is vital for meaningful participation.

We also must follow a pattern of presentation: Casual introduction followed by sensorial keys, Classification and Language

All the areas in the Montessori classroom are interrelated. We are not giving just geography but at the same time we are giving sensorial and language.

In the sensorial level we first give the experience. The material is made in such manner that the child can have a concrete idea of what we are introducing to him. For example, we introduce the world to the

child with the sandpaper globe. By holding the globe he grasps the shape of the planet, and then tactilely he can explore the distribution of the land and the water in the earth.

Then the colored globe represents physical divisions: continents and oceans.

Puzzle map of the world lets the child see all the continents at once. The maps are made in a puzzle form because activity enhances the sensory perception.

Once the sensorial experience has been given language comes into the activity.

In the language area we offer the physical and the human elements of geography through illustrations. We have collections of pictures, objects, foods and clothing. They are offered with stories and with enrichment of vocabulary presentations.

- The lives of people are shown to the children in the picture collection
- Climates of the different part of the world
- Animals from the different parts of the world
- Plants from different parts of the world
- Food and dresses of various countries
- Crafts and products from around the worlds should have a place in beautifying the environment.
- Foreign languages: greetings, songs, counting, music and dances.

Geography materials

- Sandpaper globe
- Colored globe
- Puzzle maps: map of the world, map of each continent, map of the country where the child lives
- Land and water forms: land and water forms photographs, classified cards, definition sets
- Geography folders
- Flags: child size reproductions of flags from different countries. (Are introduced in walking on the line and with the puzzle maps)

- Wooden maps and flags
- Outline maps to be used either with land and water forms and puzzle maps following exercises.
- Atlas for consultation

Before the child reads we offer the following materials and exercises:

- Sandpaper globe (sensorial and language)
- Land and water forms (sensorial and language)
- Colored globe (sensorial and language)
- Puzzle map of the world (sensorial exploration first then language. Once language is given, the child may reproduce the map of the world in a large paper tracing both hemispheres and the corresponding continents). The name of the oceans should be also given.
- Puzzle maps of the continents (sensorial and language experience then the reproduction of the continent may be done on a large paper)
- Geography folders (given by spoken language and pictures divided in different categories: general of a continent, country, food, clothing, transportation, flora and fauna)
- Land and water cards (vocabulary enrichment and definition of each land and water form)
- Flags (the child may draw the flags of the different countries)

*All this is given through spoken language, using pictures, conversation, storytelling, books and classified cards.

After the child reads...

- Labels for all wooden puzzle maps
- Reading classification cards (labels)
- Definition sets: booklet and envelopes
- Books about life in different parts of the world
- Encourage the children to work with the moveable alphabet and to write sentences or words related to Geography. Also encourage writing, exploring and studying about different people.
- Include sentences related to Geography in Reading Analysis.
- Question game where the child reads a certain description of an ocean, continent and country and the child need to guess which one is. Example, *“this continent lies at the South Pole. It was the last continent that the*

explorers found. It is covered by snow and ice. Its name means land opposite the Arctic". The child then needs to label the card.

- When introducing the names of different types of fabrics in the Sensorial exercises, talk of the origins of that cloth. When talking of silk, mention it was originally from China and continue to discuss about the climate, the people and the culture. Another route to take is to talk about how silk originated. Discuss the caterpillar, the cocoon and the butterfly and mention that the silk is from the cocoon. Mention about cotton, where it originated from, the cotton flower, how cotton is plucked, cleaned, spun into yarn, then into thread and woven into cloth.
- For example, show them how the weather is in different parts of the world. Show the child the cardinal points, have charts about the seasons and talk about the seasons. Introduce the children to constellations and the stars. Complement with pictures and slides. Have a field trip to a place which has a waterfall or a lake and invite the children to write about it. For example if the younger children are taken to a pumpkin patch, have conversation with the children and write down what the children told you. Prepare a booklet with pictures from the field trip and the tidbits which the children said.
- You may also give simple Geography experiments such as measuring rain, reading the thermometer, wind.

GEOGRAPHY EXPERIMENTS

(地理實驗)

Note: These experiments have to be changed periodically. Some need to be presented only once in the classroom.

注意:這些實驗必須定期改變。有一些實驗只需要在教室中示範一次。

DAY AND NIGHT

(日與夜)

I Material:

(教具)

Colored Globe and flashlight

有顏色的地球儀和手電筒

II Presentation:

(示範)

Darken the room and let the flashlight act as the sun. Give the impression of day and night by moving the globe around very slowly showing the child that it is the earth that moves around the sun.

遮斷教室中的光線，讓手電筒的光當做是太陽光，照在地球儀上，然後非常緩慢的移動地球儀，讓孩子有白天和夜晚的印象，同時，讓他們了解地球繞著太陽轉。

WIND AND PINWHEEL

(風和風車)

I Material:

(教具)

Make a pinwheel with paper, stick and a pin.

用紙、竹筷子和大頭針製作一個風車。

II Presentation:

(示範)

Take the pinwheel outside in the wind. The pinwheel rotates. Show child how it rotates slowly and fast depending on the speed of the wind.

將風車拿到室外向著風。風車會轉。讓孩子看到風速如何影響風車轉得快或慢。

As an additional exercise, show the older children how to make their own pinwheel.

當作延伸練習，教年紀較長的孩子如何製作自己的風車。

WEATHER VANE

(天氣風向計)

I Material:

(教具)

Make an arrow of paper, pin it on top of a stick.

製作一個用紙做的指標，將它釘在竹筷子的頂端。

II Presentation:

(示範)

Take the arrow outside in the wind. The arrow rotates and stops in the direction of the wind. Show child that it points to the direction in which the wind is blowing.

將箭頭放到室外，面對著風。箭頭旋轉且停在風吹的方向。

As an additional exercise, bring the compass and show the child the cardinal points and see which direction the wind is blowing in.

當做延伸練習，帶著指南針讓孩子看看基本方位，同時看看風的方向是哪一個方位。

MEASURING RAIN

(雨的計量)

I Material:

(教具)

A jar made of transparent glass, ruler and rain water

一個透明的罐子，一支尺和雨水。

II Presentation:

(示範)

Place the jar outside when it is raining. Measure the rain that falls in the jar at the end of the day using the ruler.

下雨時將罐子放在外頭，下課前用尺測量在罐子裡的雨水有多高。

The older children can record the rain everyday, make a chart and compare the amount of rain for a period of time.

較年長的孩子可以每天記錄雨的高度，並製作一張圖表及比較一段時間所下的雨量。

HOW WATER EVAPORATES

(水如何蒸發)

I Material:

(教具)

A jar made of transparent glass, water and rubber bands

一個透明的罐子，水及橡皮筋

II Presentation:

(示範)

Fill the jar with water and mark the water level with a rubber band. Leave it outdoors or next to the window. Check the water level each day. Put a rubber band at the current level of water on that day. Continue for a week. We notice there will be less and less water each day.

將罐子用水裝滿，並用橡皮筋來做紀錄水位。將罐子放在室外或是放在窗子旁邊。每天去檢查水位，並用橡皮筋將現在的水位紀錄下來，持續一週，我們可以看到水位會一天一天變低。

AIR PRESSURE

(氣壓)

I Material:

(教具)

A jar made of transparent glass, water and a straw

一個透明的罐子，水和吸管

II Presentation:

(示範)

Fill the jar with water. Dip a straw into it and show the children that water enters into it. Remove the straw and the water drains out.

將罐子裝滿水。將吸管放入其中，並讓孩子看到水進入吸管。將吸管拿出來，吸管中的水就流出來。

Now, suck the water into the straw and cover one end of the straw with a finger quickly. The water will remain in the straw even when the straw is removed from the water. The water will drain out only when you remove your finger. (water remains in the straw due to air pressure)

現在，用吸管將水吸起來，並將吸管的一端用手指快速遮住。只有當你將手指放開，水才會從吸管流出來。(由於氣壓的關係，水留在吸管中。)

「SINKING AND FLOATING

浮與沉

I Material:

(教具)

A bowl made of transparent glass, a pitcher with water, and two small dishes
一個透明的碗，一個有水的水壺，及兩個碟子。

Objects that sink (a nail, pins, buttons)

會沉到水中的物體(釘子，大頭針，鈕扣)

Objects that float (cork, toothpick, feather)

會浮在水上的物體(木塞、牙籤、羽毛)

II Presentation:

(示範)

Fill the bowl with water. Drop the objects one by one into the water. Some float and some sink. Place the objects that float in one dish and the objects what float in another dish. Invite the child to label the dishes with the words 'Sink' and 'Float'.

將碗裝滿水並將這些物體一個個放入碗中。有些物體會沉；有些物體會浮。將會浮的物體放在一個碟子上，將會沉的物體放在另一個碟子上，邀請一個孩子將這兩個碟子用「沉」和「浮」兩個字標示出來。

This presentation should be kept in the classroom for only one day.

(這一個示範教具應該只放在教室中一天)

RAINBOW

(彩虹)

I Material:

(教具)

A crystal glass

一個水晶杯

II Presentation:

(示範)

Place the glass in the classroom in such a position that when the sun rays fall on it a rainbow is produced.

(將水晶杯放在教室中有陽光的地方，讓彩虹出現)

GEOGRAPHY

FOLDERS

(地理夾)

Material:

教具

The Geography folders have several sets:

地裡夾有幾套:

Set 1: Folder for each continent which contains a collection of about 15 pictures of great variety showing a cross-section of aspects of life on that continent. You have to include examples of landscapes, animals, buildings, food, clothing, transportation, adults and children.

第一套：每一個大洲應包含 15 張該大洲各種生活層面的圖片，應包括地理風景、動物、建築、食物、衣物、交通、大人及小孩。

Sets 2: Classified pictures for each continent, but this time grouped in 5 different categories – food, shelter, clothing, transportation and spiritual needs (celebrations and rituals).

第二套：每一大洲都有分類的圖片，但是這一次將其分為五大類 – 食物、居所、衣服、交通、心靈的需要(慶典及祭祀)。

Set 3: Is a folder for the countries of one continent (for example Canada, US and Mexico if the child belongs to the US).

第三套：這一套是放一大洲中的國家。(例如：加拿大、美國、墨西哥，若孩子是在美國)

Set 4: The country of the child with pictures of all the states and all the cities.

第四套：這個國家各洲及各城市小朋友的圖片。

Note 1: For all the sets, the pictures are mounted on the coded colors of the continent (as in the puzzle map of the world). The countries are also coded as in puzzle maps of the continent where they belong. The captions which come with the picture are pasted behind the pictures on the cards.

注意 1: 所有的圖片，都應該用不同洲所屬的顏色來標示(如同世界各州拼圖)。各個國家的圖卡顏色也依照它們所屬的洲來標示，同時，其圖片說明也貼在這些圖卡後面。

Note 2: It is very important that when pictures are collected for a country, you show different aspects of the country and not just the stereotype.

注意 2: 收集一個國家的各種圖片是極為重要的工作，你必須展現這個國家的各種風貌，而不只是大家對這個國家的刻板印象。

Color codes:

顏色規則

North America – Orange (北美洲 – 橙色)

Africa – Green (非洲 – 綠色)

South America – Pink (南美洲 – 粉紅色)

Europe – Red (歐洲 – 紅色)

Asia – Yellow (亞洲 – 黃色)

Oceania – Tan (大洋洲 – 棕褐色)

Antarctica – White(南極洲 – 白色)

Celebration of a Country

(一個國家的慶祝)

Procedure:

程序

- The whole class participates. Parents can participate also.
全班一起參與。父母也可以參與。
- Choose one country and a group of people of that country
選一個國家，同時選那一個國家的一個民族。
- Have a place for display on the wall and a table.
在牆上和桌子上找一個地方來展示。
- Have several items depicting the life of the people (geography folders)
用幾個層面來展示這些人民的生活。

Practical life area:

生活自理區

- Grains from that country to pour,
用該國家的穀物來練習倒的動作。
- Folding cloths made out of fabrics from that country,
用該國家的布料來做摺的動作。
- Eating utensils from the country, setting the table and protocol
用該國家的食用器皿來預備餐桌。
- Food or vegetables could be brought and prepared
可以準備食物或蔬菜
- Baskets and products (bowls, vases, spoon, bell or a wooden figurine to polish etc)
籃子和物品(碗、花瓶、湯匙、鈴鐺或木製小雕像可供擦拭)
- keep the labels of the products
保留這些物品的名牌。
- Plants from the country you are presenting
準備你要示範的國家的植物

Sensorial Area:

感官區

- Native objects in mystery bag 在神秘袋中放入本土的物件
- Fabrics to match 各種布織品來配對
- Music from the country 來自該國的音樂
- Musical instruments 樂器
- Dancing 舞蹈
- Songs 歌曲

Language Area:

語文區

- A parent can come and teach numbers or common phrases in the particular language
父母可以用該國家的語言來教數字或常用的語詞
- Animals of the country can be discussed with pictures and photographs.
可用該國家特有動物的圖片或照片來討論
- Art from the country
該國家的藝術品
- Written language
書寫語文
- Holidays
節日
- Games
遊戲

Mathematics: (for older children)

數學 (給年長的孩子)

- Money(錢)
- Measurement (if different from the country you live)
(測量)

Notes:

Keep the display for a month. Introduce each element gradually and not all on the same day. Make the project lively and interesting for the children of all ages. Make it simple but attractive do not clutter the room.

注意:

展示一個月。逐步介紹每一個部份，而非在同一天全部介紹完。讓每個年齡層的孩子對這個方案的進行感覺活潑有趣。讓其簡單明瞭而吸引人，千萬不要堆滿整個教室，顯得凌亂不堪。

Point of interest: (趣味點)

Projects made and displayed, the food and all the different things brought. Children and parents can participate.

方案有自己動手做並展示出來，帶來不同的食物和物品，親子皆可參與。

Purpose: (目的)

To integrate the different areas with real representations of the places (not only pictures)

運用各國的真實呈現來整合各領域的學習，而非只是圖片。

"The citizen of the world will embrace all humanity as one and create a new world, a world of peace and harmony"

“世界的公民將擁抱全人類且創造出一個新世界，一個祥和的新世界。”

History

History is closely related with biology and geography. History is the story of man and how man has fulfilled his needs through the ages. In Montessori we do not see history as a subject or of things that need to be memorized.

It is given so the child can realize his place in society.

歷史和生物及地理關係密切。歷史是人類的故事及人類如何經過幾世紀來滿足自我需求。在蒙特梭利教育中，我們不將歷史視為一個學科或一件事來記憶。歷史用來讓孩子清楚自己在社會中的位置。

Young children do not have a clear grasp of History. History requires imagination that is why an area is studied more in the elementary level. That is why in the primary level we start from the particular to the whole, we begin with the child's own family, the child's life.

幼兒尚未具備如何掌握學習歷史的能力。歷史需要想像力，這也是為什麼在小學階段在歷史上的著墨更多的原因。這也是為什麼在學前我們先從部份到整體，我們先從孩子的自身家庭及生活談起。

Activities to include:

包括的活動:

- The child's birthday celebration
孩子的慶生活動
- Ages of the child's family
孩子家庭的年紀
- Telling time
分辨時間
- Days of the week
一週有幾天
- Months of the year
一年有幾月
- Seasons
四季
- Sequence of events (daily routine at home, school, Field trips, etc using pictures, drawing or photographs)
事件的順序(家中的例行活動、學校、戶外教學等。使用圖片、圖畫或照片)
- You may talk about inventors, explorers, composers, presidents, etc.
亦可討論發明家、探險家、音樂家、總統等。

You may also talk about how things have change throughout time (e.g. transportation, clothing, communication, the use of light, etc)

你也可以討論隨時間的流逝，事情如何改變。例如：交通運輸、衣服、溝通或光的使用等等。

As we talk about how things have changed we want to show admiration and respect for all the people that have participated in these changes. How we have benefit from the labor and great mind of people before us.

當我們討論到事情如何改變，我們要對這些參與改變的人表示欽崇和尊敬之意。並了解我們如何從這些先賢的努力和智慧獲得益處。

Science

科學

- Every child is a scientist. Children love to explore and they are natural observers.
每個孩子都是科學家。孩子熱愛探索，而且他們都是自然的觀察者。
- In the primary class we offer the children a few simple science experiments.
在幼稚園的課堂上我們會提供一些簡單的科學實驗。
- You have a special shelf with 2 or 3 experiments. You keep them for a short period of time and change them.
你有一個特別的櫃子，放兩到三個實驗。你將這些實驗放在這個教具櫃上，過些時候就改變一下，放上別的實驗。
- They are exposed and prepare in such a way that the child can go and repeat the experiment once it has been presented to him.
這些實驗可以上述的方式準備並介紹給孩子，讓孩子可以自行去重複這些實驗。
- These experiments must always be supervised by the adult.
這些實驗的操作一定要有成人在場監督才行。
- **Science** is presented sensorially to the young child and should be presented after the child is five years old.
科學透過感官性的操作展現給孩子，且這些概念應該在孩子五歲以後介紹。
- In the primary level we give the children a foundation and understanding of basic physical laws along with the scientific vocabulary.
在幼稚園層次，我們用一些簡單的科學字彙給予孩子基礎及物理法則的了解。
- The activities should also be accompanied with stories of Geography and to life in general. Experiments included in the Geography section help the child to understand the physical features of the world. Those included in Biology will help him to understand plants or rocks.

這個活動應該和地理的故事及一般的生活故事一起進行。包含地理方面的實驗有助於孩子了解存在於世界的物理現象。這些包含在生物學中的實驗也將會幫助他們了解植物和岩石。

- All these experiments can be presented in small groups, when the opportunities present themselves. When preparing the materials, make sure they are safe to use (no toxic chemicals).

適當的機會出現時，所有的這些實驗可以用小組方式示範。當你在準備這些實驗器材時，確認這些物品都是安全無毒的。

- You can also have cards for the children with instructions that they can read. The child takes the experiment form the cards, read the instructions and will do the experiment themselves. Later the child reads the back of the cards to get the direct purpose of the experiment.

你也可以用他們可以自行閱讀的指令卡，讓孩子自行從卡片中選出實驗來做。稍後孩子可以閱讀指令卡背後的實驗直接目的。

- When we show the children an experiment we do not tell them the outcome. "Let's see what will happen".

當我們示範一個實驗時，不要告訴他們結果。告訴他們：「我們來看看結果會如何？」

- After the outcome we give the appropriate language for the scientific phenomena 看到結果後，我們要運用適當易懂的語言來解釋這些科學現象。
- All the experiments must offer purposeful activity and it is a practical work which the child can connect to all areas.

所有的實驗必須提供有目的性的活動，這也是一個可以連結所有領域的實際工作。

- Invite the child to write about it – their observations and the results. 邀請孩子寫下他們所觀察的結果為何。

EXPERIMENT 1

TENSION IN WATER

實驗一

水的張力

I Material:

教具

Glass bowl with water, pepper, liquid soap or a piece soap.

玻璃碗裝水，胡椒粉、液態肥皂或一塊肥皂。

II Presentation:

示範

Sprinkle pepper on the water in the bowl. The pepper floats. Put a drop of soap in the water. Observe what happens. (The pepper moves away from the soap.)

將胡椒粉灑在碗裡的水面上，胡椒粉會浮在水面上。放一滴肥皂水在水中。觀察會發生什麼事。

III Explanation:

解釋

Soap weakens the surface tension of water.

肥皂水會削弱水的表面張力。

EXPERIMENT 2

WEIGHT OF WATER

實驗二、水的重量

I Material:

教具:

A Cup of cold water and a Cup of hot water (the hot water is colored).

一杯冷水和一杯熱水(熱水是有顏色的)

II Presentation:

示範

Have cup of hot water only ½ full. Put cold water in it. Watch the water. (The hot water rises to the top and cold water stays below).

將一杯熱水倒滿 1/2。

III Explanation:

解釋

Hot water is lighter than cold water.

熱水比冷水更輕

EXPERIMENT 3

WATER AND SOAP

水和肥皂

I Material:

教具

Wax paper, soap and water, dropper

蠟紙、肥皂、水和滴管。

II Presentation:

示範

Put a few drops of water on wax paper using the dropper. Apply soap on your finger and put your finger over the drops of water. (The droplets disperse.)

用滴管放入幾滴水在蠟紙上，將肥皂塗在你的手指，將你的手指放在水滴上。(小水滴會散開)

III Explanation:

解釋

Soap water reduces water tension.

肥皂水會降低水的張力。

EXPERIMENT 4

AIR

空氣

I Material:

A bowl of water, a candle, matches, a glass or a bottle.

II Presentation:

Place a candle in a bowl of water and light it. Place the glass over the candle.

When the candle extinguishes, watch the water. (It goes up inside the glass.)

III Explanation:

Water goes up to replace the air used up by the burning.

EXPERIMENT 5

MAGNETISM

I Material:

Have different objects which attract to a magnet and also non-magnetic objects.

II Presentation:

Take the magnet close to the objects. Watch the objects. (Some stick to the magnet and some do not.)

III Explanation:

Objects which are not made of iron (or other magnetic substances) do not get attracted to the magnet.

Other Experiments to present:

- Sink and Float
- Magnetic and non-magnetic
- Static electricity
- Refraction
- Water surface tension
- Air pressure
- Vibration of objects produces sounds
- Air and water cannot occupy space at the same time
- Colors in a prism
- Sound travel in waves
- Air has oxygen and fire needs oxygen

Biology, Botany and Zoology

(Nature Study)

Biology is a science that studies life in all its aspects. In the prepared environment, we just give a key to the child to explore how living things live, what they need for nourishment, their conditions for growth and their life-cycle. The **main purpose** of Biology is to guide the child's natural exploration from mystery to mystery and revelation and wonder. The **indirect purpose** is to have an appreciation of life and an awareness of the interdependence and inter-relatedness of nature. When the child comes into the environment, we need to continue to keep his interest in nature and to fulfill his tendency for exploration.

- We want the child to see and to realize the interrelationships of all living being are great.
- We want to talk about nature and animal life. Their physical characteristics, their habitat, their life processes and the interdependence of plant and animal life.
- We must always remember the child's capacity for learning, that powerful absorbent mind.
- The child needs concrete experiences and activities that he can handle so there can be an emotional connection to the information we give him.
- Language should be always attached to the activities.
- Children come to us from various backgrounds. Some have experience nature at home but others have never experience getting outside.
- We want to encourage the parents to bring their children close to nature.
- The experience outdoor can have a follow up in the indoor environment and vice versa the work indoors should be a preparation for the work outdoors so that each environment reinforces each other.
- We must convey to the children that every plant and animal is important that each creature has its role. We must take care and protect nature.
- There should never be a moment that a teacher step on an insect or kills the insect.
- Especially take advantage of spontaneous natural situations.

We offer the children 2 environments:

- 1) The indoor environment
- 2) The outdoor environment

Biology, Botany and Zoology

Indoor environment

Bring plants and animals.

Plants:

- When selecting plants make sure to have a variety of them (non toxic)
- Have aquatic, terrestrial and aerial plants.

- Make sure they have different leaf shapes

Animals:

- When selecting an animal think of the appropriate environment and habitat you need to prepare for that animal. If you are not able to provide it then do not have the animal in the classroom.
- Instead, have experts bring the animals and show them to the children.

Activities in the classroom:

Living and non-living things

- Have baskets with living and not living objects (cards)
- Explain what are living and non-living things
- Start classifying them together with the child
- Invite the child to do it

Nature table

- Have a low, small table
- Invite the children to place on the table objects that they found in nature. Or you may bring an object.
- Talk about the names of the objects
- If it is a living thing have a glass container with lid for the children to observe it (at the end of the they let the animal go to its habitat)
- Have a magnifying glass
- Replace the objects periodically

Activities with plants

- Naming the plants
- Cutting the dead leaves
- Watering the plants (each plant has different needs)
- Cleaning the leaves
- Misting the plants
- Repotting the plants

Activities with flowers

- Always have flowers in the class
- Arranging flowers
- Changing water from the vases\cleaning up dead flowers from the vase
- Cleaning the vases

Activities with animals

- The animals have to be suitable for the class
- Give the children the opportunity to sit and observe the animal
- Show the children how to handle the animal and make sure the animal will feel secure.
- Feeding the animals

- Cleaning the cage or habitat
- Have a cocoon in the classroom and have the children observe when the butterfly comes out of it.

Note: you need to know how the plants and animals will be cared during the weekend and during the vacation. Parents can help in this.

In Sensorial, when the child works with the Botany cabinet, the child can bring leaves from outside and compare with the shapes in the cabinet.

Language work for nature study

- Teach the name of every plant and animal with the three-period lesson.
- Have classified cards
- Bring an object from nature and invite the child to write a story
- Have books about nature
- Have storytelling and conversation about nature
- Have Word study about animals and their homes. Animals and their sounds, animals and their groups
- Labels of things from nature
- Poems about nature

Outside environment

The child needs an outdoor environment in which he can explore freely and safely.

Some areas can be cultivated with flower beds and other areas should remain with weeds and wild plants.

Have compost for organic waste. This can be used as a dump for raked up leaves and also as manure when planting new saplings.

This area should contain keys to the plant kingdom.

Therefore you could have fruit trees, different plants, flowers, maybe a small pond with fish and a turtle. You could also have a place for feeding birds, a place to keep garden tools

Activities in the outside environment:

Gardening

- Have small garden plots that children can easily reach and cultivate
- Prepare the soil
- Rake it to become smooth
- Talk about what plant is to be planted
- Show how to take care of the plants
- Children may take turns in taking care of the plants

Special projects

- Children may plant seeds in cups to see them grow and take care of them

Care of tools

- How to handle them and how to clean them after using them

Other activities

- Raking leaves
- Sweeping the driveway
- Cleaning up entrance area
- Cleaning the bird bath
- Cleaning the bird feeder

Note:

These activities should always be supervised by an adult because we are dealing with living things

The teacher demonstrates how to do the activities and the children do them later

Wildlife experience

Observe:

- Clouds
- Flowers
- Butterflies
- Spider webs
- Insects
- Bark of trees
- Rocks
- Pinecones
- Leaves
- Listen to sounds outside
- Find traces of animals
- Have nature walks. When you walk do not talk to them. Let them observe and enjoy nature.

Art in the Montessori Environment

Art is an area that is often misunderstood. In Montessori, we should take it also as a part of exploration. Art cannot just be considered a creative outlet. When we talk about creativity we are talking about the constructive power of the child to construct his personality. Self-creation is what the child struggles to construct through experiences in his environment. Creativity is life. Not just artwork or music. All these are expressions of creativity. We need to make sure that the child has the possibility to be creative in every activity, so he can make variations and create different designs.

The material should be a source for the creative process of constructing himself. Through the exploration of many of the materials, the child can discover his potentialities. The important thing is not the end but the process. Montessori has been criticized for not having creativity in the classroom for they don't understand what creativity is. Creativity is to create from what is known and from what has been understood and to give a new form and a new vision to what you know.

Creativity is also the outward expression of an interior development. If there is no interior development, there can be no outward expression of form and beauty and language. Therefore we can help the children to be creative. The broader concept of creativity involves the total development of the child and not just only intellectual and academic advancements of knowledge. To be able to be creative, the child needs movement, independence, order, language, freedom and everything else that we have in the prepared environment. We need to keep 2 aspects in mind in order to facilitate creativity:

- 1) There can be no expression if there is nothing to express.
- 2) The child needs to learn techniques that are necessary for creative expressions.

The two areas which help creativity are Practical Life and Sensorial.

Practical Life activities will give the child order, control and coordination of movement, ability to follow a sequence of steps, precision, etc. this will help him organize his thoughts and be able to express his inner thoughts through artwork.

In sensorial, we just give one way on how to work with the material and once the child has refined his senses he can later be free to explore with the material in a different way (variations).

Even in Language, the child is invited to create borders on the paper he writes. He is invited to write on half of the page and do a drawing on the other half to express his thoughts. The child can be creative with the metal insets.

If a child wants to talk a lot and wants to explain what he did over the weekend, invite the child to draw it and write a few words about it. Nature and art: when making a nature walk, bring leaves, rocks, twigs, bark, pinecones, seashells, seeds. Observe their color how they vary. Invite them to observe their surroundings, paintings on the wall, colors of their clothing (dark colors, light colors. What a color makes you think of?

Invite the parents to have for their children a space where they can work and do art activities.

Preparation of the environment for art:

- When setting the activities on the shelf keep in mind the color coding.
- Always provide quality tools and materials.
- Have the activity on a tray, have a protector, apron.
- Consider cleaning procedures (moist towelettes, sponges, buckets, towels)

Procedure:

- The guide presents the activities in an interesting manner.
- You are giving only basic techniques then the child experiments and discovers.
- Build a foundation of creativity and confidence.
- The teacher, before presenting it should have the experience with each activity.
- The emphasis in the primary level should not be in the product but in the development of order, concentration, motor skills and the satisfaction of doing the work.

Activities:

Crayons:

Give the 3 primary color crayons and ask the child to draw and color using them and later introduce the other colors.

Cutting:

Snippets, short lines, long lines, curvy lines, zigzag lines, spirals, shapes, etc.

Gluing:

Simple cuttings, tissue balls

Collage:

Introduce collage in the classroom. After the child has learnt pasting, show the child different kind of material which he can use for pasting. But first ask the child what he wants to create with the material and then give the material so he can create a collage based on what he wants to express.

Construction paper, wrapping paper, foil paper, lace, ribbon, doilies, straws, thin wire mesh, sandpaper, contact paper, etc

Relate the collage activity to an artist who used collage in their work: Pablo Picasso, Matisse, Braque.

Painting:

on an easel (introduce one color first, two, then three colors. later show the effect of mixing colors and introduce white) on a table (water colors, temperas) finger painting

Combine collage and painting

Printing:

Fingerprinting, Cork printing, cardboard printing, vegetables printing, found object printing (nail heads, bolts, thread spools, bottle tops, buttons, and sponges)

Sewing:

Sewing simple shapes on cardboard

Sewing on Burlap

Sewing designs on fabric using simple stitches and then simple cross-stitches

Making small pillows

Origami

Have classified pictures of cards for art

Classified Art Pictures

Set 1: The cards are classified according to the subject of the painting, for example, animals, costumes, facial expressions, musical instruments, skies.

For each subject, there are two envelopes containing the same pictures- one has the name of the painting and the artist written on it, the other has loose name slips. A Colored mark

On the back of each picture indicates where to put it back. The envelopes can also be labeled (have a large selection of this type).

Set 2: these cards are classified according to countries. We should try to represent different continents and cultures, for example, Dutch, English, French, Spanish, American, Canadian, etc.

The material is prepared the same as for set 1.

The cards can be taken from those in set 1.

Set 3: these cards are classified according to the periods and styles of art, for example, Renaissance, Baroque, Modern Art, etc.

Preparation is the same as set 1.

Set 4: A number of folders or booklets, each one giving information about a certain artist. Include reproductions of some of his paintings. On the outside have the name of the artist and his picture