“A child’s world is fresh and new and beautiful, full or wonder and excitement. It is our misfortune that for most of us that clear-eyed vision, that true instinct for what is beautiful and awe-inspiring, is dimmed and even lost before we reach adulthood. If I had influence with the good fairy who is supposed to preside over the christening of all children, I should ask that her gift to each child in the world be a sense of wonder so indestructible that it would last throughout life, as an unfailing antidote against the boredom and disenchantment of later years...the alienation from the sources of our strength.”

— Rachel Carson, The Sense of Wonder

Enriching Science through Engagement & Exploration

Kathleen Farfsing, M.Ed.
Beth Tracy- Kaliski, M.Ed.
Xavier Montessori Institute
https://www.xavier.edu/montessori/

Workshop Goals

Science impacts our choices about our health, our careers, the environment, the way we vote, world economics, and how we choose to interact with our natural world.

In order to prepare the child for life, we must provide EXPERIENCES in the CONCRETE to allow them to DISCOVER TRUTH.

“.... Only by action can the child learn in this age. He has to do something which develops his unfolding self.”

Montessori: The Absorbent Mind
IMAGINE YOU WERE INTRODUCED TO... CHIMERA

...AND THIS IS YOUR INTRODUCTION TO THIS ANIMAL!

If you are lucky, maybe you will get to hold a plastic replica!
NO WORRIES, YOU KNOW WHAT & WHERE THE TAIL IS!

Your cards include this paragraph—that's all you need to know, right?

A chimera is a fire-breathing creature with parts of two or three animals. Most common is a lion head, with goat body and a tail of a snake. It is a mythical animal which means it is imaginary. In Greek mythology, the chimera was a fire breathing she-monster who is an omen for disaster.

"Imagination is a force for discovering the truth."

Science

- provides an outlet for a child's imagination and supports their curiosity through multi-sensory exploration
- creates a framework to develop problem-solving strategies and discover answers
- prepares the 3-6 child for later science literacy
- creates a love for the natural world
“There is no description, no image in any book that is capable of replacing the sight of real trees, and all the life to be found around them, in a real forest.”

M.M. From Childhood to Adolescence

“He needs an impression, an idea which above all awakens interest. If he acquires the interest he will later be able to study and understand these subjects rapidly. If the interest is not aroused, the sciences, which have attained such a degree of development and which have so much influence on present-day civilization, will remain obscure.”

Montessori, Childhood to Adolescence
How Do We Support an 'Impression' & 'Arouse Interest' in Science?

Carefully Prepared Environment, Rich with Experiences +
Process of Inquiry +
Integrated Curriculum

Adult Responsibility:
Preparing the physical environment

Environment Needs to Be:
ORGANIZED - THERE IS ORDER IN THE NATURAL WORLD
LESS IS MORE

There is beauty & richness in simplicity

BASED IN REALITY
RICH IN EXPERIENCE
Creating their own pulley

RICH IN EXPERIENCE

RICH IN EXPERIENCE
Chemistry Experiments-
Making Slime

White Glue  Liquid Starch
Making Slime

"It is not enough for the teacher to restrict herself to loving and understanding the child; she must first love and understand the universe."

- M. Montessori, Childhood to Adolescence pg. 20

Adult Responsibility: Preparing themselves

Social Environment
- Adult who is willing to expand their knowledge base
- Adult who is a cheerleader, curious, excited, delights in the unknown, invites mistakes, takes chances, is a truth seeker not the holder of truth
- Adult working to create a community where children can experiment, fail, ask questions, and practice the process for discovering truth
- Adult committed to talking less and listening/observing more
Recording Data

Record Experience

Share
Dinosaurs

Digging for Dinosaur Bones

Created plaster cast of fossils and dinosaur footprints
Learned the names of dinosaurs

Dinosaurs
Question- How long were they?

We researched, we recorded the numbers, but the children were not satisfied

Velociraptor is 5.9 feet long
Tyrannosaurus Rex is 40 feet long
Stegosaurus is 30 feet long
Triceratops is 26 feet long
Brachiosaurus is 98 feet long
This is what we did!

RECORDING THE EXPERIENCE

transrisrex is a big
dinosr
it eets meet

CONTENT

SCIENCE

Practical Life

Reading

Math

Performing Arts

Visual Arts

Abacus

Map

Alphabet

Writing

Geography

Family Life

Money

Measurment

Graph

Shape

10 frames

Preschool Science

Mathematics

Literacy

Art

Science

Reading

Writing

Social Studies

Health

Physical Education

Music

Drama

Dance

Technology

Science

Social Studies

Health

Physical Education

Music

Drama

Dance

Technology
Writing

Math-
Measuring the Circumference of a tree trunk

Math-
Comparing, ordering, classifying
“If a child is to keep alive his inborn sense of wonder, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in.”
— Rachel Carson

The mission of the Xavier University Montessori Institute is to educate and transform. We engage our community to be creative thought leaders, rooted in Montessori pedagogy, who advocate for human potential. We cultivate a sphere of action through rigorous academic and professional programs guided by our core values of trust, reflection, investigation, inspiration and service.

ALL FOR ONE