

January 9, 2021

Dear Parents,

Welcome back to school! I hope you all had lovely holidays and are enjoying being back in our regular routine. The children appeared to be grateful to return to school and reunite with their friends and beloved classroom. Several new students have joined us. I would like to welcome Linton N., Emily T., Sam M., and Gannon P. to our class. We are approaching our regular complement of children and our class is thriving! There are so many wonderful things to cite about our Montessori classroom, but one of the most impressive is watching the children welcome newcomers. It is always hard to decipher who gets more from these interactions, the child being helped or the child who gets the opportunity to help. I have observed children showing others the proper procedure to build a geography puzzle map, the way to experience the thrill of swinging on a rope swing in the woods, and many lessons such as building the hundred board and counting the seven cubed chain this week. Unless one witnesses it first hand, it is hard to imagine how much the children learn from the classroom materials themselves and watching each other work.

The next series in my description of the classroom materials will focus on the term you hear often in the education world these days, STEM, Science, Technology, Engineering and Math. My focus on the Montessori math materials will continue in the next letter, but for today I would like to give you some examples of the way Montessori materials and experiences cover so much more than simply math. Science is all around us. There are so many little things we can do to inspire children's critical thinking, in essence showing them the study of the physical and natural world (review the November letter to see more about environmental science in action). The children are continually experiencing the study of water in class. Even through a spill the children experience volume, saturation, absorption and many other sciency things. Did you ever notice the volume of a glass of water looks so much bigger when it is no longer contained in the vessel and is spreading all over the floor? How about when you start to clean it up with a sponge and the damp sponge then keeps making more wet areas on the floor? I have observed children spend inordinate amounts of time spreading that spill with a damp sponge. How about when the sun shines in and hits the top of their lunch box at just the right angle? It makes light dance on the ceiling! Reflection of light waves? Now that is something to inspire. The top of the lunch box actually bounces the light waves off of it since it cannot absorb the light energy! And you wondered why your child didn't eat all their lunch that day - they were busy learning about the law of reflection!

I have included some pictures to depict some of the science that is occurring naturally. The picture with the red-topped and blue-topped cylinders are called

sound cylinders. They are used for classifying sound by matching those that are the same and then grading the cylinders from softest to loudest. They were featured in the letter describing sensorial materials, highlighting the sense of sound, but now we will look at the sound cylinders and the bells in a very different way. The vibration is what is making sound. This week I introduced an experiment that I will send to you so you can replicate it at home if you would like. Some of our students have already experienced it in the class. It deals with vibration and sound waves and only needs a spoon and a string. Follow the directions and you too can be a scientist. I introduce this experiment with a book titled Vibrations. It cites many ways to make vibrations to therefore make sounds, both loud and soft. Also featured in the attached pictures is one of our children flying through the air on one of our rope swings. Motion and force will be among our future science topics.

You will also see pictures of the pink tower being built on top of the broad stair. Those two young engineers were so clever to know that they could rest the two thinnest brown prisms in order to continue to build the smallest two cubes on top! They did this simply by trial and error and some critical thinking. The girls are building the cubes and prisms into a structure by following a diagram. Beautiful work!

Lastly you get a taste for the math lessons that are to come. One picture is of number rods. The child identifies a numeral and goes to a faraway mat to find the corresponding rod. The number card is placed at the end of each rod giving a strong impression about the length of the rod being shorter or longer. Classification and order are necessary skills to become a scientist. And it doesn't stop there. Children get to experiment with adding and subtracting and begin learning some addition and subtraction equations. The second math picture is of the spindle box. To complete the spindle box, one must identify numerals and count those quantities. My little friend was saying, "My hand's not big enough to hold all these!" by the time she got to nine. What a great impression that nine is greater than one.

So, this should whet your appetite for the next segment on math materials. Know we are having a great time at school and miss seeing all of you. I would be so appreciative to get a little sentence back from you with a comment or a question or simply a hello!

We are looking for volunteers to bring in a bunch of flowers at the beginning of each week. The signup genius is in the most-recent newsflash. The flowers are always appreciated.

I'll look forward to hearing from you!
Carrie

January 15, 2021

This morning we began our day in a very unusual manner. I conducted a science experiment and children respectfully gathered around and took turns making hypotheses. With a bowl of water and a container of objects, children chose an object and made their best guess as to whether the object would sink or float. I was sure to tell them that even the most famous scientists make hypotheses as a starting point for further investigation. Sometimes their hypothesis is proven, and sometimes it is disproved.

It was so fun questioning children about why they made their hypothesis and why they thought it was correct or incorrect. The children were brilliant! They came up with answers about objects being heavy or light or empty. When pressed they realized that the ping pong ball wasn't actually empty! It was filled with air. The book we read at lunchtime suggested that children fill up their bathroom sinks with water and see what sinks or floats. So, you have me to blame if your little scientist splashes some water around. Actually, though if you collect objects and present them while your child takes a bath, then they can enjoy the items to their hearts' content. We used things such as coins, corks, toothpicks, paperclips, ping pong balls, feathers, pipe cleaners, plastic spoons, rocks, tree bark, shells, etc. Two trays, labeled sink and float, were used to categorize the objects. We spoke about the density of the water being lighter or heavier than the object we placed. Using aluminum foil, you can lightly roll the foil and see if it sinks or floats. Then ball it up very tightly. Do you get the same result? Why?

After lunch we conducted fruit-bowl science:

We filled a small bucket with water. In it we placed an orange. What's your hypothesis? Will it sink or float? Try it and see. After conducting step one peel the orange and put it back in the water. What happens? Why?

Using two glasses or plastic cups fill each with water. In cup A place some grapes. What's your hypothesis? Will they sink or float?

In cup B pour enough table salt until it no longer dissolves. Place grapes in this cup. What happens? Why?

There is your homework for the weekend. Your children loved this investigation and we sparked many a conversation for further work and experiments.

During playground time the children have been enjoying a stomp rocket. If you have never seen a stomp rocket look it up. My grandson got one as a gift for his birthday. It is so fun. Ask your children what a trajectory is. I'll be curious to know if they remember!

Have a great weekend!
Carrie

January 24, 2021

As promised I am sending the first in a series of Montessori Math materials. This segment will tell you how your child (around the age of four) will begin with formal math lessons. I say "around" and "formal" because, if you haven't figured it out already, children are learning continuously by simply being in a Montessori classroom! The very first math material introduced is called the number rods. Every math material always covers the concept of quantity first, simply counting the segments of the rods in this case, followed up with learning the symbols. In this case the symbols are in sandpaper numeral form. The children trace the sandpaper numerals in order to learn how to write them, but like when they trace sandpaper letters they are also visualizing the numeral, hearing the numeral name, as well as getting the motor memory to learn to write it.

The number rods are pictured in two forms in this email. One picture shows a child matching a numerical quantity to its corresponding numeral. This is something a child will do over and over again. Oftentimes the children will work on these counting and matching lessons at a distance. By doing this the children are also building their memories as they hold a thought in their head and walk to a faraway mat to find the match. As you know, memory becomes very important when children are learning mathematical facts to prepare for advanced mathematical work.

The second picture of number rods shows a student building quantity of ten by looking at each rod and figuring out how many more are needed in order to make ten (then nine, eight, etc.). It is an introduction to addition. It is almost guaranteed that a child will have an audience when doing this work with me. One of the graces and courtesies we work on in our class is how to keep information tucked inside your head when you are watching others' work. It is the ultimate impulse control for preschool and kindergarten children to not shout out answers when they know them. You would be surprised the level of control they are able to achieve at school.

The second lesson featured in pictures is called the cards and counters. (Please note that sandpaper numeral pictures were featured in past emails. Spindle box pictures too, which are also part of this series of materials.) The cards and counters call upon children to order numerals from one to ten. Once ordered the children then count appropriate quantities under each numeral. The picture that you see with some numerals pushed up is the part of the presentation that gives the children a snippet of information about odd and even numbers. Once the children become proficient with cards and counters we play a game called mystery game of numbers. This is a fun group activity that prompts children to

look at their numeral, but not tell anyone what it is. Then they count their quantity so the rest of us can also know what their numeral is. Once the group knows the player's quantity and states the number, then the player shows their numeral. The children love this game and play it way past the time that it is needed for learning. It's simply fun! Older children playing with younger children helps the older children to solidify their knowledge, and it helps the younger children to practice their counting and numeral recognition. It takes awhile for some children not to shout out their numeral once they recognize it - that impulse control thing again.

The next segment of the math series will feature the Bank Game, a cornerstone of the Montessori math work.

At any given moment in a class there will be children doing a multitude of different things. It's a busy, humming atmosphere almost always. While one child is counting, another may be writing. Another child may be walking on the line to perfect their movement walking heel to toe, and another having snack. The freedom of movement in the class allows for all sorts of learning to be going on simultaneously.

Ms. Irwin and I are fortunate to be part of your children's lives and learning. I will be getting a sign-up genius link to you soon for the February conferences at which time we can discuss your own child's activities and progress. Parent teacher conferences are scheduled for February 15th. I look forward to seeing all of you in person!

Sincerely,
Carrie