

# Who Knew...



Credit: Airman st Class Malissa Lott Released  
| VIRIN: 130509-F-SZ127-012.JPG

**A**t one point in time, I was offering science enrichment to well over 500 students, in 5 area pre-schools and conducting teacher professional development at both regional and national conferences. A round robin affair running from classroom to classroom, school to school, workshop to workshop.

It was an intensive immersion and nuanced exploration into the "mind workings" of young children - the differences, the uniqueness of their inquiring spirits, but also an opportunity to gain insights into classroom practices and attitudes impacting their learning.

As the school year was closing, one of the early child centers asked if I could design a series of themed week-long summer enrichment sessions. As I had been teaching at the school during the year, I knew the teachers. Yet, despite my almost weekly encounters with the

children I didn't really know the students. It might surprise you to learn this "clean slate" approach was, in fact, by design.

I chose not to hear about this student or that student, their strengths and/or weaknesses. Their parents or learning disabilities or abilities. When I walk into the classroom, I walk in without assumptions, without bias and without preconceived notions on what students can (or cannot) do both as a group and individually. In knowing, or in our assumption of knowing we often become complacent (aka lazy). We make judgment calls. We carry forward views developed by ourselves or informed by others opinions.

Knowledge is power but when it is rooted in an unchanging view or mired by preconceived ideas there is perhaps no greater danger to our ability to effect change, to recognize and appreciate differences, and to nurture alternate expressions of talent and ability in young children. *Viva la difference* is generally the bane of most classroom teachers lives!

Our approach with how2SCIENCE is fundamentally about the process. My process may be very different than yours, my style of learning, my abilities. But a well-constructed learning experience embeds within the design of an activity alternate approaches, structure and constraints imbued with creative freedom - the very essence of engineering and design.

- Will all students complete the assigned activity? ✓Yes
- Will those endpoints be different? ✓Yes
- Will students bring home output from an activity? ✓Yes

The obligatory "show and tell" opportunity for their parents serves many purposes. Good purposes. But almost always "Show and Tell" negates the value of the process, since said output may not look like much in the end. Then again, it may be a spectacular showcase of abilities, of students and of the process, depending on the activity.



- Will students move through the activity at their own pace? ✓Yes
- Is there a desired outcome? ✓Yes
- Are the activities designed to be emergent? ✓Yes
- Is the engagement constructivist? ✓Yes

Some may argue with the rationale of this approach or even the process, but while science, creativity, innovation and design can and do follow some prescribed rules, the discovery process is always emergent and constructivist, and all the more engaging for minds running at top speed.

But back on point, as I was developing a smorgasbord of "fun" summer discoveries I had a bit more latitude in developing activities which differed somewhat from the year-round offering. There are many hands-on and, or as I prefer, mind-on science oriented activities which fulfill the STEM/STEAM/STREAM and how2SCIENCE's SMART (Science-Math-Art-Reasoning-Technology) agenda. Our approach has always been to integrate concepts, concepts often considered outside the capacity of young students to grasp, but which are the building blocks for further study and future learning - so within their aegis (and our responsibility). I have never shied away from this in the classroom, and have always imparted these "big ideas" aka recurrent themes to students and to educators in workshops and seminars.

Students come in all shapes and sizes, demonstrating a range of capabilities and capacities, which we often don't fully appreciate. It's easy to become complacent, to hold to the status quo. It's easy to teach to the norm or the majority. It's easier and perhaps the saddest commentary on early childhood educational practices as an important factor driving the ever-widening disparities and gaps in educational systems around the world. But beyond the obvious problems, what is not often appreciated is that a subset of tremendously talented young people can fall into this same gap not for lack of ability but for lack of attention to their differently-expressed abilities.

And so that summer, I found myself working with a particular classroom teacher who was continuing into the summer with her year-round class. In the fall, the pre-K class would move on to other schools, other programs, but for the summer camp program they would remain. It was, in many ways, a relatively seamless continuation...more of the same in terms of teacher-student interactions, views and attitudes which were also carried over from the school year (and perhaps even from previous years of student/child -teacher interactions).

During engineering themed week which included a variety of building and design activities, I wanted to students to build a corral for plastic wild and farm animals (and dinosaurs truth be told). It was a free choice for the students on who they were "penning up". As a nature lover, I'm not fond of zoos or animals penned up in corrals, and so I wove an intricate introduction which conveyed that the enclosures were only a temporary holding space for their animal choices. They were given the option to choose one or more critters, and armed with squishy marshmallows and blunt ended toothpicks set about the task.



There were a few issues which cropped up, a student with less than perfect fine motor and depth perception was assisted by one of the classroom teachers - though I had asked that he be allowed to just do to the best of his abilities with limited assistance (or interference) from the teacher. She stepped back some from her helpful hands-on interventions but still did most of the work. I turned my attention to the rest of the constructs, marveling at each, and genuinely awestruck by one creation in particular. (I am embarrassed at not having taken a picture so my description will have to suffice).

It was a multiplex complex built up vertically as compared to the other corrals which were mostly single story structures - beautiful and complete as well. But this structure housed a collection of animals of different sizes,



with gate openings for the animals to pass from one area to another. Were the carnivores separated from the herbivores, not in this version - an animal utopia perhaps or a lesson about the animal kingdom best saved for another day.

As I looked at the design, drawing the regular teacher's attention to the structure and to the young child - an awkward, relatively tall for her age, very quiet girl - the teacher simply said, "who knew?"

In fact, she should have known but in the design of her regular classroom curriculum, her weekly lessons over approximately 200 days of daily interactions, this "different" child was forgotten at best, and deliberately ignored at worst. A relatively wasted year for this child who remained awkward at its end, separated from her peers and her abilities neither nurtured nor appreciated.

We had all failed this young girl. We needed then, and now, to do better. To not only hear the verbal child, traits of an obviously gifted and talented child or an openly inquisitive child, but to pay attention to the child who sits in the corner, often alone, with his or her mind...dreaming, imagining, thinking a myriad of amazing thoughts and ideas, and yes hoping, waiting and wondering when someone will take the time to listen...