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July 2, 2018
Integrating Arts into STEM
NASA/Endeavor

Teacher, Please Get the Moon For Me!

Integrating art to develop understanding

As a child, the vast enormity of space was a miracle to me. I wondered how anybody could fail to appreciate the sheer immensity of the moon and stars? What is out there? What is after that? And after that? Watching the 1969 moon landing is a moment in time forever etched: My aunt's neighbor had a color television and we were invited to come watch the landing in his living room. I stood there, still wet from the pool, transfixed as the lunar module slowly descended towards the moon's surface. My damp feet on the shag carpeting, my body still, and my eyes glued, fascinated, to the console television set. The landing itself was almost anticlimactic. At some point, the module landed in what I remember as a puff of moon dust, sand, something - the moon!

As a parent and a teacher, I wanted so much to impart this joy, this transfixed curiosity, this enormity that is space, to my children. How, I thought, do I get children to *feel* what I feel? This is woven so tightly throughout my philosophy of education and my journey as a facilitator of learning.

I used to hand out a moon calendar copied from *Cycles of Knowing and Growing,* an AIMS publication that supports hands-on math and science activities for elementary-aged children. The children were to

work with their parents each night and draw a picture of the moon in the night sky for that calendar month. While the activity itself was worthwhile, it never evoked a lot of excitement. Discussions tended to be closed-ended and the attempt to connect my learners to a cycle of growth and change was not satisfying. I was a new teacher and "good enough" was acceptable.

My second NASA/Endeavor class was about the moon, Earth, and stars. With almost two more decades of classroom experience, I began to improve my kindergarten moon study. I created a new and much-improved moon cycle series of lessons. Attached is a presentation created for Dr. Rebecca Vierya and the *NASA Physics for Real Beginners: Earth, Moon, and Space* course (Spring, 2017).

How am I going to enrich this cyclical moon study with art making? What form will support the development of understanding, interest the learners, and add sophistication and interest to our burgeoning curiosity about the moon? Drama with a reader's theater component would fit. The young actors can hold up their renditions of various moon phases and "act out" their learning. They can join hands while holding up or wearing their depictions of moon phases and dance in a circle to demonstrate the lunar phases and share what they know. There are a variety of creative options - but why is their inclusion important?

Integrating arts across the curriculum enriches learning. Progressive educators like Horace Mann and John Dewey wrote about a positive relationship between "instruction in the arts and cognition

(Gallatt, 13)." Vygotsky maintained that children "construct their own knowledge through the active process of learning….the arts [are] integral to that process (p.13)." Indeed, Davis posits that "the arts [are] viewed as ways of knowing," and that they "connect the cultures of the world" (p.14)." Additionally, inculcating arts across curricula encourages "higher order thinking skills and complex problem-solving, (p.15)."

Motivation is essential for learner engagement. Harrison and Hummell maintain that "animated characters have become significant components of entertainment" and that "using them in the classroom can become another tool for reaching students [with] visual and kinesthetic learning styles (2010, p. 20)."

After some consideration, I think that animation will add an layer of interest and excitement to our study of moon phases in kindergarten. After collaborating to create the individual components of a moon cycle animation, learners should be able to "visualize… this complex process" much like they watch a cartoon or the action in a video game (Harrison & Hummell, 20).

My concern about creating animation with kindergarten children is two-fold. First, I need the children to understand they are contributing an important *part* for a synthesized *whole.* This idea can be introduced by having the learners work cooperatively to complete a large, 25-piece puzzle. Each part, they understand, is important for the finished puzzle. The puzzle would not look right with a missing piece. Yet, each piece by itself is meaningless until it is placed properly in the

puzzle. This is a concrete example of modeling synergy for young learners.

Secondly, what steps do I take to ensure that each child contributes to the animation and that what they have created will actually work *as* an animation? Drawing the phases might be challenging because most young children lack the fine-motor coordination necessary for detailed drawings that change just enough to make a cohesive animation. I have an aversion to handing children pre-made drawings and having them color in the details. For me, the process is more important than the actual product. Yet, for this particular activity, the end result has to connect to each child and enhance their understanding of lunar phases.

When my school was new, it was small. I was able to use my afternoons to visit each classroom as an art teacher. I learned with the children and embraced the need for regular visual arts instruction. There is an art component in most of our projects that relates to the essential questions.

There is enormous potential for bringing additional art making into my classroom curriculum. Animation is inherently interesting and can be used to illustrate concepts and support learning in a different way. Children enjoy acting out stories, role-playing, and using puppets to make sense of what is going on around them. I use music and encourage the kids to dance each day. When studying growth and change, we *become* a caterpillar, a trout with a yolk sac, a seedling that will become a pumpkin. I am challenging myself to *level up* and begin

using more art making and technology with my learners this school year.

References

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