

**Not Horsin' Around: Learning Mathematics the Horse Way**

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Innovative Idea Poster

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### **Introduction and Need for Innovation**

Today's agricultural practices often leave American audiences searching for information on agricultural production and the processes. However, with only 876,300 of the U.S. population employed in the agricultural industry (Bureau of Labor Statistics, 2018), Americans are extremely unfamiliar with the elements of modern agriculture (Specht, McKim, & Rutherford, 2014). Stories and media of industrial farming and modern agricultural methods have violated stereotypes of agriculture for decades. The implications of these stereotypes have led to confusion and a lack of agricultural literacy among the American population. In hopes of combatting the lack of agricultural literacy, our industry has placed high value on educating audiences of all ages through programs including extension services and School-Based Agricultural Education (SBAE) programs (FFA, n.d.).

With the nature of the Agricultural Education degree, it is likely for university graduates to find themselves in the position of working in extension services or SBAE programs. Furthermore, it is crucial for pre-service agricultural teachers to develop the knowledge and skills to educate in different pedagogical settings. The Kentucky teacher preparation program partnered with the local Equine Extension Specialist and local fourth grade classes to provide pre-service teachers the opportunity to teach an equine mathematics lesson. Spotlighting one of the most famous equine athletes and a Triple Crown winner, Secretariat, the lesson sought to maximize exposure and education of the equine industry to fourth-graders. Utilizing mathematics, fractions and conversions, the lessons objectives were for students to use Secretariat as a comparison to mathematics and expose children to agriculture at an early age. Through the partnership with the Equine Extension Specialist, pre-service teachers designed a lesson tailored to this specific audience based on their needs using hands on-activities and basic mathematics. This innovative idea aligns with Research Priority 5 of the 2016-2020 American Association for Agricultural Education Research Agenda: Efficient and Effective Education Programs.

### **How it Works**

The development of this teaching series was guided by the passion of the Kentucky Equine Extension Specialist to expose young audiences to agriculture in the summer of 2019. Upon approaching a professor within the agricultural education program, the assignment was included in the senior level Methods of Teaching course requiring pre-service teachers to create, plan, and execute a horse mathematics lesson to Kentucky fourth graders using pedagogical teaching techniques. The pre-service teachers were provided the assignment at the beginning of the semester and were presented with a lecture, from the Kentucky Equine Extension Specialist, one month prior to the teaching the fourth graders. Given the nature of the assignment of designing this lesson the pre-service teachers collaborated and developed the lesson with the assistance of the equine specialist and the teacher educator. Tasked with this challenge, pre-service teachers had to meet the challenge of preparing for the pedagogical audience; predicting topics to stem in the discussion; and using methods for teaching children and youth in which they have learned through their program.

As the students designed the lesson and gathered the materials, the equine extension specialist arranged the teaching series with mathematics classes in four counties in Kentucky with a total of twelve teachings. On the day of the lessons, pre-services teachers were prepared to travel and teach the fourth-graders. After the lesson, fourth-graders were able to discuss the agricultural industry and were provided with additional resources for them to get involved in their local 4-H Club. As the pre-service teachers returned from their teachings, there was reflection and guided discussions on their lessons. This provided the Methods Teaching course the opportunity to apply the course to a classroom setting and guided lectures on discipline and special needs students.

### **Results to Date**

The Horse Mathematics Series has just finished a successful first year this fall. After completing the teaching series, pre-service teachers were asked to reflect upon 1) what could be improved in these lessons? and 2) could any of the aspects in this lesson be expanded for future semesters? These reflections will help the professor of the course judge the impact of this assignment in future courses. During the reflection period, pre-service teachers said this lesson was challenging as they struggled to show clarity between mathematics and agriculture. Jenna reflected on teaching this lesson by stating “students would have a better grasp on the concepts if it was taught in a more repetitive manner over the span of several days.” Erica also added her thoughts by stating “this lesson could work well in a science class with different agricultural subjects. For example, with parts of a plants, pollinators, wildlife, animal welfare, and so many more.” Additionally, Jenna and Erica’s peers suggested lessons, such as the horse series, can be utilized in their future programs.

### **Future Plans and Advice to Others**

The implications of this lesson suggest students have an interest in in agriculture; however, they often have limited agricultural resources resulting in a lack of agricultural literacy. This lesson allowed for a fun way for fourth-graders to have fun while becoming acquainted with agricultural using mathematics. Educators should look for more ways to incorporate agriculture within their classroom to provide exciting cross-curricular learning experiences (Lance, 2008). Seeing as the teaching series has thus far been a success, the teacher preparation program will continue to schedule this as an assignment within the senior-level Methods of Teaching course. The agricultural education program would like to explore additional opportunities like this one to facilitate other learning series relevant to their own communities. While this particular series was focused on the equine industry, it is advised that programs reach out to other commodity groups to offer versatile experiences.

### **Cost and Resources Needed**

The materials needed for this lesson include: three 2x4’s, string, and colored paper. Currently, the total cost of these materials at Lowes and Walmart is \$27. However, instructors should take into account the time needed for the professor of the course to collaborate with the extension specialist and to train the pre-service teachers on the material. Instructors should adequately plan for the time it will take pre-service teachers to travel to and from the cooperating schools.

**References**

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