

NAAE Ideas Unlimited Award Narratives

Overview:

For this novel teaching idea, I have developed a project for students in my Veterinary Science/Animal Science class to create a Gestation Wheel or Pregnancy Calculator. This activity takes place after students learn the basic anatomy of males and females in each of the major livestock species, as well as receiving instruction on puberty age, estrous, estrus, parturition, and gestation length for cattle, swine, sheep, goats, horses, and chickens. Using this information, students are given the task of creating a breeding calendar that they can use to calculate when females of each of these species are bred and due to give birth based on that breeding date.

This idea is relatively easy to construct for students but does challenge them in execution. Students are given two pieces of cardstock after they have constructed a rough draft design. They are instructed to find two perfect circle objects of different sizes (large coffee can and a small coffee can as an example). They trace these items and then cut them out as closely as possible to the perfect circle. If available and practical, the use of a Cricut machine is nice to cut out perfect circles for students. You might also use paper plates. Using a butterfly pin, pin the two circles together so they can spin freely. Students then must label a “Start” date and indicate when each of the 6 livestock species would be due based on the date as a calendar is on the larger, outside plate. For usefulness, students spin the inside plate to match the outside date and follow the circle around to find the proposed parturition date.

This is especially practical for my students, who are student managers of our Agriscience Research Farm, with a small flock of ewes, does, and gilts and it is important for them to understand how gestation length, breeding date, etc play a role in overall management as well. This is especially unique as it requires students to think critically to be able to include all 6 livestock species on the same gestational wheel and be able to make the breeding time match up with the gestation length.

Practicality of Idea:

This idea is practical due to the simplicity of the concept itself. While I use it for my upper level Veterinary Science class, it could be adapted for lower level Agricultural Science I courses. Every Agricultural Education program teaches animal science of some sort, which typically includes a unit on animal reproduction. This means that it could be applicable for nearly any program across the country, but it especially is fitting for the Missouri Agricultural

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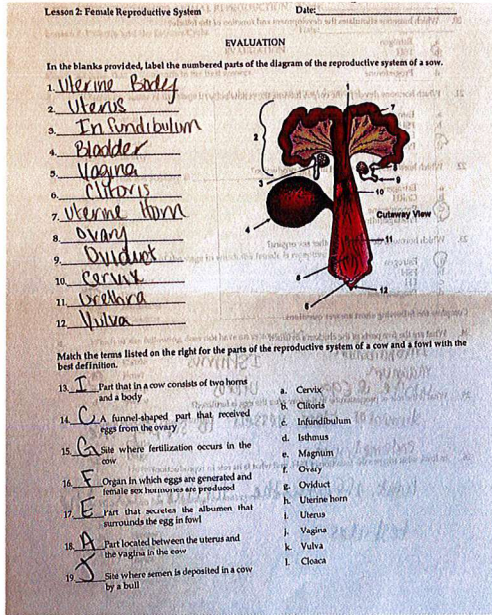
Education curriculum as available on the Department of Elementary and Secondary Education website.

Adaptability of Instruction:

This idea is highly useful and feasible for nearly every Agricultural Education program and teacher as it could be used at a higher level or lower level of instruction. However, what is unique about this project is how it could be adapted for another topic. I believe it would also be useful for instruction in a Greenhouse/Horticulture class. If an instructor wanted to challenge students to create a growing calendar with a proposed sale date, students could create a similar concept with information based on different lengths of time to plant maturity or average days to first bloom. Obviously, instructors would need to limit the amount of plants required on the wheel as only so much information can be fit into one project. If a particular instructor doesn't teach animal science curriculum, chances are they teach some form of plant science, so this project is highly adaptable and feasible for several Agricultural Education teachers all across the country.

Instructional Value:

This project is highly cross-curricular involving math, science, and communications. Students use high levels of math critical thinking for this activity as students struggle with getting every species to end on the proper gestation time. Students must also use the anatomy and physiology knowledge gained during the entire reproductive unit. The communications piece comes into play later in the project. Students must also come up with their own farm logo design to include on the wheel. Students are instructed that this logo must represent what their "farm" would be if they were an actual producer. Some students are livestock producers in real life, so it gives them an opportunity to create a real-life brand for their own farm.

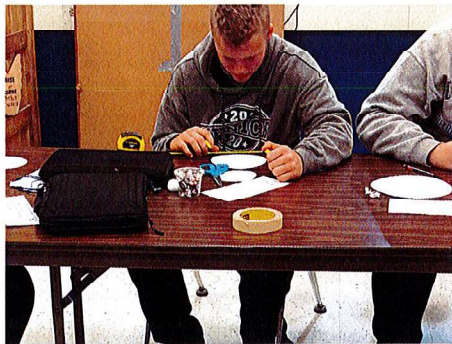


Puberty Age, Estrous Cycle Length, Estrus Length, Parturition, & Gestation

Species	Puberty	Estrous	Estrus	Parturition	Gestation
Cattle	6-12 months	21 days	18 hours	Calving	9.5 months
Swine	4-8 months	21 days	3 days	Farrowing	3m 3w 3d
Sheep	5-9 months	16 days	30 hours	Lambing	5 months
Goats	4-12 months	21 days	36 hours	Kidding	5 months
Horses	10-12 months	21 days	5 days	Foaling	11 months
Chickens	5 months	n/a	n/a	Laying	21 days

Learning the ages of puberty, estrous cycle, length of estrus, parturition terminology, and length of gestation is critical for this activity, so we go through this information as a class before the project.

This is the front of a packet that students must complete before they complete their gestation wheel. Students also complete a similar packet over the male reproductive system as well.



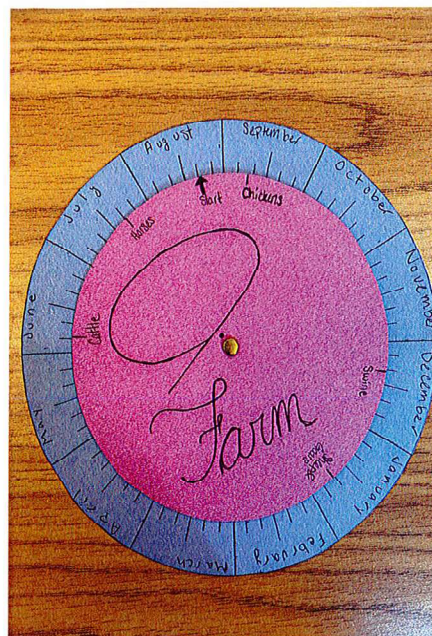
This is a student who just completed cutting the initial circles out for his wheel. All students must submit a rough draft of their wheel to prove they understand the concept before they are given the pieces of cardstock.



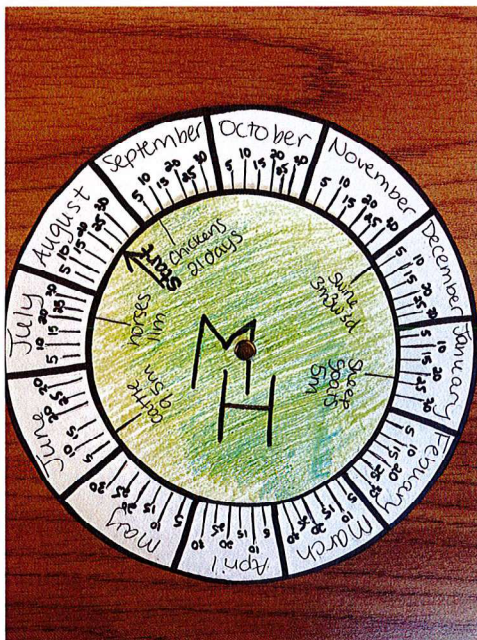
These students are also in the initial phases of creating their wheel. As you can see, a few of the students are bouncing ideas off each other to see if their plans are going to work. While I do want students to submit their own project, I allow them to work together to ensure the quality of work turned in. A simple concept is often challenging for even upper level students at times.

Multi-Species Pregnancy Wheel		Points Awarded
Includes full calendar year and company name (5)		
Includes every species: cattle, horses, goats, sheep, chickens, pigs (5)		
Includes correct gestation length (5)		
Accuracy (5)		
Design/Ease of Use/Neatness (30)		
Total		/50

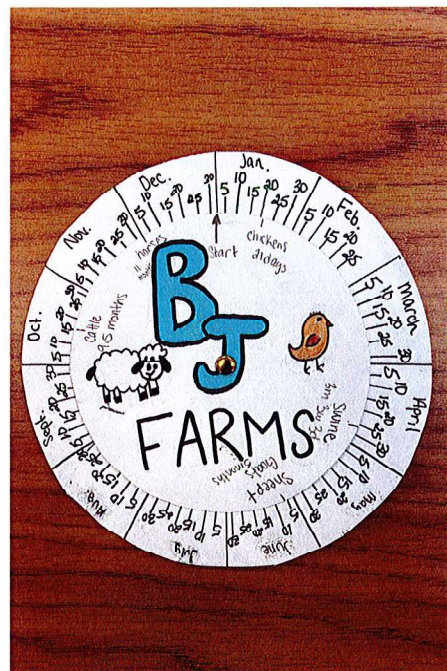
Students must have a rubric before they begin the activity. Again, while this seems like a simple activity, some students will struggle with completing it, so I have adapted the rubric so that if a student does struggle, it won't derail their grade.



Student Work Example 1



Student Work Example 2



Student Work Example 3