Contain the Creatures!

A Jeometric Analysis of the Livestock Barns

LIVE B MR GEOMETRY

STATE FAIR OF TEXAS CURRICULUM

The Livestock area has always been an important part of the State Fair of Texas. Many of the livestock buildings were built in the 1930s. You will explore these buildings on your Quest to contain the creatures!

During this Live @ the Fair Quest, you will:

- *Measure animal enclosures.
- *Determine the area and perimeter of the enclosures.
- ★Find the diagonal of each enclosure using the Pythagorean Theorem and the distance formula.
- *Design an optical illusion art piece.
- *Write a short story from the perspective of a creature being kept in an enclosed space.

Standards

- ★Math (Geometry) TEKS: G2B, G5B, G5C, G11B
- ★Art TEKS: Art I: 1B, Art II: 1B ★ELAR TEKS: E2(14)(A), E2(17)(C), E2(18)(A), E2(19)
- ★Career Development TEKS: PS1A



Source: http://www. bountifulfarm.com/pic/ barncenter.jpg

Before You Go - 10 min prep time, 30 teaching time

- *Review the area and perimeter formulas.
- *Write and use the distance formula and Pythagorean Theorem.
- $\star \texttt{Explore}$ the relationships between the distance formula and the Pythagorean Theorem.



Invitation

★Invite students to explore and analyze the animal enclosures at the State Fair of Texas.

Plan Your Route

- ★Begin your Quest by finding the Woofus sculpture.
- ★After you have found the Woofus, explore the Livestock Barns nearby.

Contain the Creatures!

A Jeometric Analysis of the Livestock Barns

STATE FAIR MAP



Optional Materials to Bring

- ★Pen or Pencil
- *Tape measure
- *Sketchbook
- *Notebook or Paper
- *Smartphone or Tablet

While You're There

The objective of your visit is to measure animal enclosures, so that you can use this information in your project back at school.



STATE FAIR OF TEXAS CURRICULUM

- ★CONTAIN THE CREATURES!: After you have located the Woofus, enter one of the nearby buildings.
 - o Choose an animal enclosure.
 - □ Measure the length and width of the animal enclosure.
 - □ Record the collected data and the building name.
 - o Move to another building, and choose another animal enclosure.
 - □ Make sure it is not the same size.
 - $\hfill\square$ Measure the length and width of this animal enclosure.
 - $\hfill\square$ Record the collected data and the building name.

★PERSPECTIVES (ENGLISH PORTION): What if we lived in a world where humans were shown at the Fair and kept in the enclosures? o As you watch the animals, put yourselves in their hooves; watch them as they walk around the ring and are washed and cared for by their owners.

- o Jot down notes on:
 - \Box How the animals interact with their owners and other humans
 - How they act in their enclosures
 - \Box How they act outside of their enclosures.
- o You'll use this info for an activity in class.

After the Fair - 50 min project

When you return to class following your State Fair visit, you will
use your knowledge of Geometric concepts to find the complete
dimensions of the two Livestock enclosures you measured:
*Find the area of both enclosures, and label the buildings.
*Find the perimeter of both enclosures, and label the buildings.
*Use the Pythagorean Theorem to find the measurement of the
diagonal of both enclosures.



Contain the Creatures!

A Seometric Analysis of the Livestock Barns

ImageQUEST 3STATImageGEOMETRYCU

STATE FAIR OF TEXAS CURRICULUM

- o Identify each using the name of the building.
- *Draw both enclosures on graph paper.
- o Make sure one of the corners is at the origin.
- *Use the distance formula to find the measurement of the diagonal of both enclosures.
- \star Were the diagonals the same?
- ★Explain the relationship between the Pythagorean Theorem and the distance formula.
- ★Can you have an animal enclosure that has the same perimeter as one of the two you found, but has a larger area?
- *Compare your work with a partner, and check each other's work.
- o See if you came to the same conclusion about the Area question.



Take a piece of tracing paper and trace over the shape of the enclosures. Now, let's have a little optical illusion fun with these shapes!

- ★Optical illusion art is created simply with line direction and variation.
- *Check out the links below on some techniques that you can utilize to create op art with simple shapes and line!
- o https://www.youtube.com/watch?v=MqZ5fAW-FfU
- o https://www.youtube.com/watch?v=vTvw_LGBtlM
- ★Try making your own optical illusion art, using the Livestock enclosures as your starting point.
- o How can you incorporate the dimensions, shapes, etc. into your artwork?
- o Have fun with this! It's your art, so be creative!



Source: https://scontent.cdninstagram.com/ hphotos-xpfl/t51.2885-15/e15/11024417_107498600 9185181_1505766310_n.jpg

En ENGLISH PORTION

See the main "While You're There" portion of the Quest for instructions first.

When you return to class, write a short story as *if you and your classmates* were being shown at the Fair! The story should:

- 1. Be one and a half pages
- 2. Be double-spaced
- 3. Use 12-point, Times New Roman font
- 4. Contain at least 5 literary devices (i.e. metaphors, personification, onomatopoeia)