

The State Fair of
TEXAS
Curriculum

LIVESTOCK & AGRICULTURE
GRADE 5 STEM

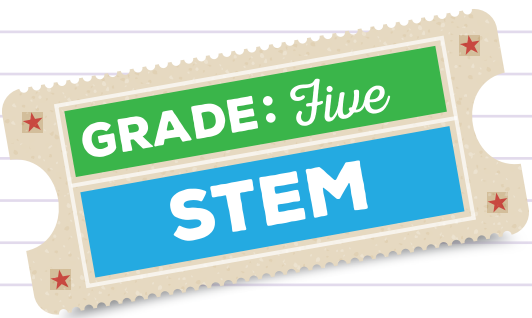
FARMVILLE:

BUILDING A HOME ON THE RANGE, AND AN URBAN SPRAWL!



TEACHER

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Farmville Building a Home on the Range, and an Urban Sprawl!



In this lesson students will:

- ★ Use their knowledge of operations and solving problems with perimeter.
- ★ Design appropriate living spaces for livestock.
- ★ Make recommendations for future Texas city planning.
- ★ Imagine the ideal Urban Sprawl.



Standards

- ★ Math TEKS: 5.1(A), 5.1(B), 5.1(D), 5.3(A), 5.4(H)
- ★ Science TEKS: 5.4(A), 5.9(A), 5.9(C)
- ★ Art TEKS: 5.1(A), 5.2(B), 5.4(A)

Before You Go

Discuss the importance of understanding the structure and function of our environments.

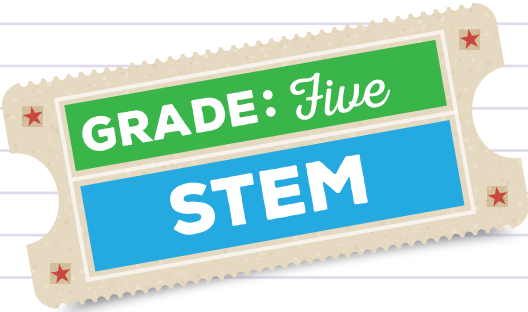
- * How do people determine the amount of space and the resources we need to survive in our environment?
- * Class discussion: how fast is the Texas population growing?
 - Look at the table below to examine how quickly the population in Texas is growing, compared to the national average:

- * Where are we going to put all of these people?
 - Term introduction: Urban Sprawl
 - What does population growth do to ecosystems?
- * Why is it important to understand perimeter?
- * How does an agriculturalist or farmer determine the amount of space (specifically fencing) and the resources their livestock need to survive in their environment?
- * Read about Mrs. Johnson and her property, using Mrs. Johnson's Map. How much fencing does Mrs. Johnson need?
- * Research the livestock shown at the State Fair of Texas, so you can help Mrs. Johnson make an informed decision.

Table 1. Total Population and Percent Population Change Texas and the United States, 1850–2012

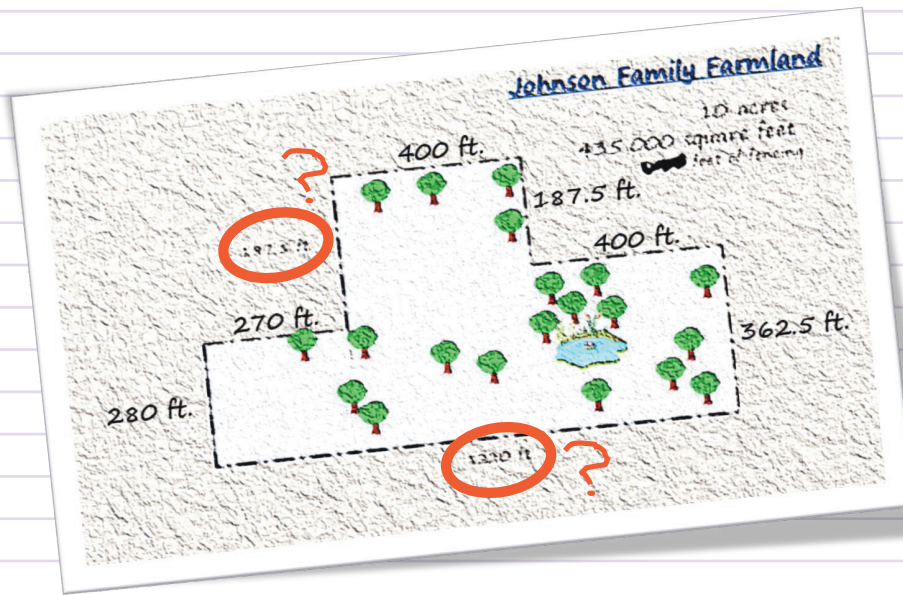
Year	Texas	United States	Texas Percent Growth*	U.S. Percent Growth
1850	212,592	23,191,876	184.2	35.6
1860	604,215	31,443,321	35.5	26.6
1870	818,579	39,818,449	94.5	25.5
1880	1,591,749	50,155,783	40.4	20.7
1890	2,235,527	62,947,714	36.4	21.0
1900	3,048,710	75,994,575	27.8	14.9
1910	3,896,542	91,972,266	19.7	16.1
1920	4,663,228	105,710,620	24.9	7.2
1930	5,824,715	122,775,046	10.1	14.5
1940	6,414,824	131,669,275	20.2	19.0
1950	7,711,194	150,697,361	24.2	13.4
1960	9,579,677	179,323,175	16.9	11.4
1970	11,196,730	203,302,031	27.1	9.8
1980	14,229,191	226,545,805	19.4	13.2
1990	16,986,510	248,709,873	22.8	9.7
2000	20,851,820	281,421,906	20.6	0.7
2010	25,145,561	308,745,538	1.5	0.7
2011	25,631,778	311,587,816	1.7	
2012	26,059,203	313,914,040		

Source: U.S. Census Bureau; Decennial values as of April 1 of census year. 2011 and 2012 as of July 1.



Farmville Building a Home on the Range, and an Urban Sprawl!

Mrs. Johnson inherited a plot of land from her great uncle, and would like to use it as a farm. She found this old map in her uncle's attic, and it contains a lot of important information about the family's property.



Unfortunately, some of the information on the map is hard to read, so we will need to use our problem solving skills to figure out the unknown dimensions. Mrs. Johnson plans to start creating a farm by purchasing materials to build a fence around the property. She remembers her uncle telling her to buy enough materials so she could use half of the amount to build a fence around the entire property, and the other half to construct homes and pens for the livestock.

Plan Your Route.

- ★ You'll be taking the Moo U Guided Livestock Tour at Nimitz Dr. & M.L. King Blvd.
- ★ When you're finished, head to the Swine Barn and other Livestock areas.
- ★ Don't forget to wave at the Woofus!

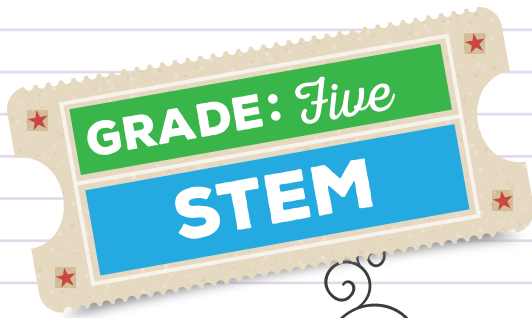
Materials to Bring

- ★ Mrs. Johnson's Map
- ★ Pen/Pencil
- ★ Meter Stick/Measuring Tape
- ★ Clipboard
- ★ Graph Paper and Science Notebook or Paper
- ★ Smart Phone/Tablet/Camera/Recording Device (optional)



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While You're There

You will use information you gather at the State Fair to help you with up to **three project goals**:

1. Help Mrs. Johnson plan her farmland.
2. Predict what will occur to land, farms, and cities in Texas in the next five years.
3. Design an Urban Sprawl of your own!

Interview an agriculturalist or expert at the State Fair of Texas to obtain more information about the livestock and the environments they live in. You might want to use your smartphone/tablet/digital camera to take pictures of the livestock or record your interviews.

You may want to work with a partner!

Interview questions may include the following:

- ★ How large is this animal?
 - * Length?
 - * Width?
 - * Height?
- ★ How is the livestock pen/stall similar to the animal's home?
- ★ How is the livestock pen/stall different from the animal's home?
- ★ How much fencing is needed to create this animal's home?
- ★ What additional resources do the animals need in their home to survive?

After the Fair

★ Mrs. Johnson's Farm:

When you return to class following your State Fair visit, you will determine how many livestock pens Mrs. Johnson could build for the animals on her homestead using leftover fencing.

- * Using the information you have collected, draw a blueprint of your suggested plan for Mrs. Johnson on graph paper.
- * Which animals would you suggest she buy for her homestead?
- * Build a model of Mrs. Johnson's property, using materials such as toothpicks, straws, or popsicle sticks to represent the fencing she needs.

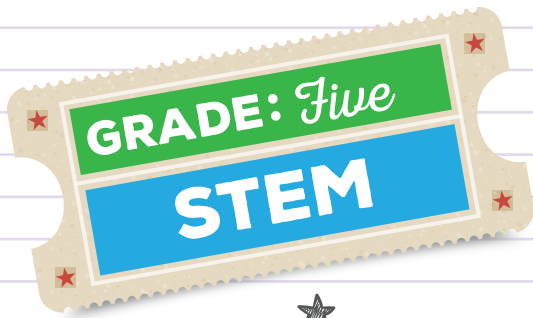
★ City Planning:

Based on what you have seen about the rapid population growth in Texas and what you have learned about the space required to raise the animals that provide food for us:

- * Predict what will happen to the land and farms in the next five years.
- * Then, synthesize the information to make recommendations to the city planner in a formal letter.

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Arts Connection: Urban Sprawl

Urban sprawl is happening at a rapid pace, and seems almost inevitable due to the population spike in cities. There are, however, reasons other than space that motivate people to choose to move to outlying suburban areas.

- * What do you think some of these might be?
- * How could we remedy some of these problems so that people remain in urban areas?

Consider The Reasons...

Wanting to live in a more suburban area is very attractive to many people. However, one of the main problems with “urban sprawl” is that the land is used. Houses and stores, many times, are built on fertile agricultural land that is needed to grow important crops to feed both people and animals.

Another issue is that large tracts of land are used for only one thing, such as housing, work, or shopping. These are usually separated by a distance that requires an automobile to get to (thus adding to pollution).

Either in a small group, or on their own, have the students consider some of these issues.

Brainstorm Solutions...

★ Brainstorm possible solutions to these issues. Remind the students to think about the information that their guide at the Fair gave them regarding the requirements for farmland.

- * What could we do in suburban areas to conserve rich farmland?
- * How might it look differently in the future from the way it does today?
- * How can the urban and suburban areas work together?



Design Your Own!

After the brainstorming session, students can design their own suburban area, complete with:

- * Homes
- * Stores
- * Farmland rich with crops
- * ...Anything else?

When they are finished, invite each group to share and discuss their new suburban design. Have groups point out how each design is different from, or similar to, a typical suburban area that we see today, and what issues they thought about in their own design.

