

The Places You'll Go

Auto Exploration

CARS, CRAFTS AND COMMERCE

QUEST 01 ALGEBRA I

STATE FAIR OF TEXAS CURRICULUM

The State Fair of Texas hosts the largest car auto show in the Southwest! You will get to explore the automobiles in order to choose the car that best suits you.



During this Cars, Crafts, & Commerce Quest, you will:

- ★ Collect gas mileage data from automobiles at the Fair
- ★ Write function rules to determine how much gas the autos use, and graph your results
- ★ Write function rules to determine the cost of driving each auto, and identify the variables
- ★ Use the data you collect to decide on the best car for your future needs
- ★ Design a triptych artwork based on the vehicles you viewed
- ★ Write an essay that compares and contrasts the best and worst vehicles for you



Learning Standards

- ★ Math (Algebra) I TEKS: A1B, A1F, A3B, A3C, A4B
- ★ Art TEKS: Art I: 1A, 1B, 2F; Art II: 1A, 2B, 2D
- ★ ELAR TEKS: E1(13)(A), E1(13)(B), E1(13)(C), E1(13)(D), E1(13)(E)
- ★ Career Development TEKS: PS1G, PS1H, PS5C

Before You Go – 15 min prep time, 30 teaching time

Beforehand, prepare students to be able to execute the following skills:

- ★ Create a table from data collected.
- ★ Identify the independent and dependent variables.
- ★ Graph a line from a table.
- ★ Write a function rule.

In addition, review with them the following terms:

- ★ Make/model of car
- ★ Miles per gallon, or MPG
 - o Miles per gallon changes depending on whether you're driving in the city or on the highway.
 - o Why is that, exactly? Discuss.
 - o Average MPG, and even city/highway mpg, can be a big priority when choosing a vehicle! When it's time to purchase, consider where you may be living/driving.

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STATE FAIR MAP



Invitation

★You are invited to attend the State Fair of Texas and explore the gas mileage of three automobiles of your choice.



Plan Your Route

★Begin at the Esplanade. The buildings to your right and left contain automobiles.



Optional Materials to Bring

- ★Pen or Pencil
- ★Sketchbook
- ★Notebook or Paper
- ★Smartphone or Tablet



While You're There

The objective of your visit is to collect gas mileage data from 3 different automobiles at the State Fair of Texas, so you can make an informed decision about vehicles later in your project.

★**THE PLACES YOU'LL GO:** Walk around the Esplanade area and pick 3 different types of autos you think you would like to own.

o Choose:

- ☐ 1 that gets bad gas mileage (less than 20 MPG)
- ☐ 1 that has moderate gas mileage (between 20 and 40 MPG)
- ☐ 1 that has great gas mileage (over 40 MPG)

o Record the gas mileage for each auto on your phone, a notebook, or use this table:

Make and model of car	Tank size	MPG (city)	MPG (highway)	Average MPG

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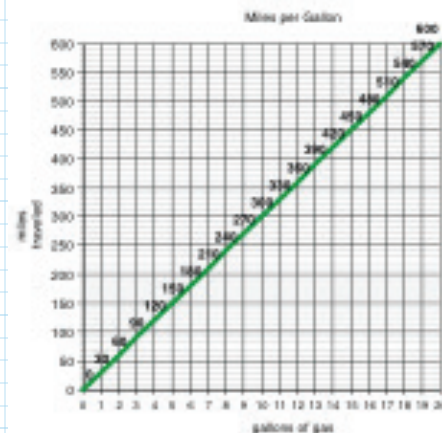
After the Fair – 50 min project

When you return to class following your State Fair visit, you will write a function rule for each type of auto to show the number of miles each car can travel depending on the gallons of gas.

- ★ Make a table for the number of miles per gallon that each car can travel for a domain of 0–20, similar to the following example. You will have 3 tables.

Car #1	
Gallons of Gas	Miles Traveled
0	0
1	
2	

- ★ Graph the data from the tables on one graph using a different color to represent each auto.

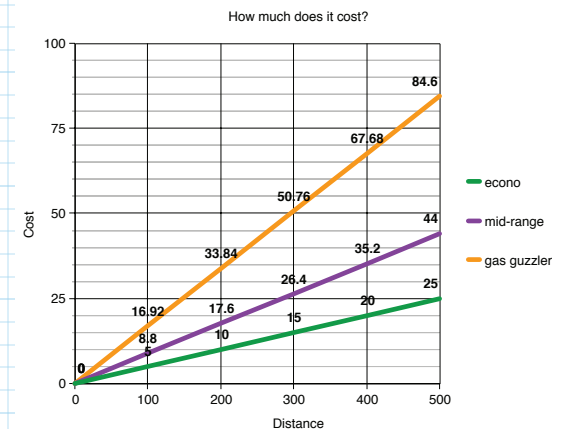


Example Graph of One Vehicle – DO NOT COPY

- ★ How many gallons of gasoline do you need to travel 100 miles for each auto?
- ★ Identify the independent variable and dependent variables.
- ★ Determine the current price of gas per gallon.
- ★ Write a function rule that relates the cost of driving each auto to the cost of gas and the expected miles per gallon (rate of change will be the gas price/mpg).
- ★ Complete the following table for the cost to drive each auto.

Distance in Miles	Cost of driving (Auto #1)	Cost of driving (Auto #2)	Cost of driving (Auto #3)
25			
50			
100			
200			
300			
500			
N			

- ★ Graph the data from the tables on one graph using a different color to represent each auto.



Example Graph, DO NOT COPY

- ★How much would it cost to travel 1000 miles for each auto?
- ★Identify the independent variable and dependent variables.
- ★If you had \$100 to spend on gas, how far could you drive with each auto?
- ★Consider what you think your adult life will be like. What kind of job would you like to have? How much money do you think you will make? Where might you live? Using this information choose the best car for you and explain why you made this choice.



ART PORTION

For your art portion, create a triptych of the 3 cars that you chose, in the style of Zentangles.

- ★A triptych simply means a series of three artworks that have a relationship to one another.
 - o In this case, the 3 artworks are the autos you chose to focus on from the Fair.
 - o They can be the same size, or different sizes - it makes no difference.
- ★Zentangle is a form of art that is akin to doodling and is meant to be very relaxing - almost free from thought.
 - o There are no rules to the forms that you create in your Zentangles.
 - o The only rule is that you use clean, crisp lines.
 - o Ideally, you should use a fine-point permanent marker.
 - o Check out the link below to see some fantastic examples.
 - <https://www.zentangle.com/zentangle-method>
 - o If you get stuck thinking of a pattern, simply Google Zentangles, and thousands of ideas will be at your fingertips!
- ★When you finish your triptychs, display your class "auto show" for the school to view!



ENGLISH PORTION

Using the information that you gathered about the three different types of automobiles at the Fair, compare and contrast the best and worst cars for you.

- ★Using your computer or tablet, write a one and a half page essay on the differences between the two car choices.
- ★The essay must:
 1. Have an introduction, body, and conclusion
 2. Support your arguments with evidence (data, observations, etc.)
 3. Show the advantages and disadvantages of both car choices
 4. Be double spaced
 5. Use Times New Roman, 12-point font