



It Takes Math to Run a Circus

Grade Levels 4-6

This classroom activity is based on The “Big Top” Show Goes On: An Oral History of Occupations Inside and Outside the Canvas Circus Tent. It is provided courtesy of the Oklahoma Oral History Research Program (OOHRP) at the Oklahoma State University Library.

Formally established in 2007, the OOHRP has collected and preserved firsthand accounts from individuals who have witnessed historic moments. The program explores the lives and contributions of Oklahomans from all walks of life.

The “Big Top” Show Goes On is one of many projects undertaken by the OOHRP. This oral history project aims to preserve the voices and experiences of those involved with the work culture associated with Hugo, Oklahoma’s tent circus tradition. Many circuses have called Hugo home through the years, but only three currently remain. As the number of traditional tent circuses dwindles, their continued existence in Oklahoma is a testament to the dedication this circus community has for providing a magical experience to be shared by people of all ages. Made possible by a 2011 Archie Green Fellowship from the American Folklife Center, oral history transcripts, recordings, and images from this project are available not only at the OSU Library in Stillwater but also the Library of Congress in Washington, DC.

The OOHRP invites you to explore the website (www.library.okstate.edu/oralhistory/circus) and learn more about Hugo, Oklahoma’s connection to the circus.

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Background

There is a lot of math that goes into running a circus. Pretty much everyone—managers, the ring master, cooks, drivers, the 24-hour man, acrobats, clowns, animal caretakers, ticket sellers—uses math.

The circus usually travels to a different town each day. Each time they move, it's called a "jump." Most jumps are not actually that far apart, so the crew is not on the road for more than about an hour or so at a time. However, there are a lot of vehicles involved in the move, so quite a bit of fuel is required.

Activity

- A) If four semi-trucks and eight travel trailers stopped in sixteen different towns over a period of three weeks, and none of the towns were more than 72 miles apart, how many miles, at most, would the circus have put on all their vehicles combined?
- B) Gas for the vehicles costs \$3.70 per gallon on a good day. If the semi-trucks get, on average, seven miles per gallon of gasoline, and the travel trailers get eight miles per gallon, how much would it cost to fill the vehicles with just enough fuel to get to the next town 58 miles away? Based on the maximum number of miles traveled over a three week period, which you figured out above, how much would be spent on gas over the three weeks on the road?
- C) Most circuses are on the road from March or April through October or November. They typically make at least 200 jumps throughout this time period. Based on your previous calculations, how much would a circus of this size (which is very small) spend in a season on fuel if it stayed the same \$3.70 per gallon?

That's quite a bit of money, isn't it? That doesn't include food for the people, food for the animals, paying the worker's salaries, costumes, props, advertising, products, repairs, and so much more. It doesn't make the ticket price seem so bad after all, does it?

Key

- A) $4 \text{ (semis)} + 8 \text{ (trailers)} = 12 \text{ vehicles}$
 $15 \text{ (16 stops so 15 jumps between towns)} \times 72 \text{ (miles max)} = 1,080 \text{ (miles max per vehicle)}$
 $12 \text{ (vehicles)} \times 1,080 \text{ (miles)} = 12,960 \text{ (miles total among all vehicles)}$

B) Part 1

$1 \text{ (semi)} \times 58 \text{ (miles)} / 7 \text{ (mpg)} = 8.28 \text{ (gallons fuel)}$
 $4 \text{ (semis)} \times 58 \text{ (miles)} / 7 \text{ (mpg)} = 33.14 \text{ (gallons total for semis)}$

$1 \text{ (trailer)} \times 58 \text{ (miles)} / 8 \text{ (mpg)} = 7.25 \text{ (gallons fuel)}$
 $8 \text{ (trailers)} \times 58 \text{ (miles)} / 8 \text{ (mpg)} = 58 \text{ (gallons total for trailers)}$

$33.14 + 58 = 91.14 \text{ (total gallons of gas)}$
 $91.14 \times 3.7 \text{ (dollars per gallon)} = \337.22

Part 2

$4 \text{ (semis)} \times 1,080 \text{ (miles per vehicle)} = 4,320 \text{ (total miles for semis)}$
 $4,320 \text{ (total miles)} / 7 \text{ (mpg)} = 617.14 \text{ (gallons fuel)}$

$8 \text{ (trailers)} \times 1,080 \text{ (miles per vehicle)} = 8,640 \text{ (total miles for trailers)}$
 $8,640 \text{ (total miles)} / 8 \text{ (mpg)} = 1,080 \text{ (gallons fuel)}$

$617.14 + 1,080 = 1,697.14 \text{ (gallons of fuel needed for all vehicles)}$

$1,697.14 \times \$3.70 = \$6,279.42$ would be spent on gas for all twelve vehicles to stop in sixteen towns over a period of three weeks.

- C) $\$337.22 \times 200 \text{ (jumps)} = \$67,444 \text{ (minimum spent on fuel for vehicles)}$